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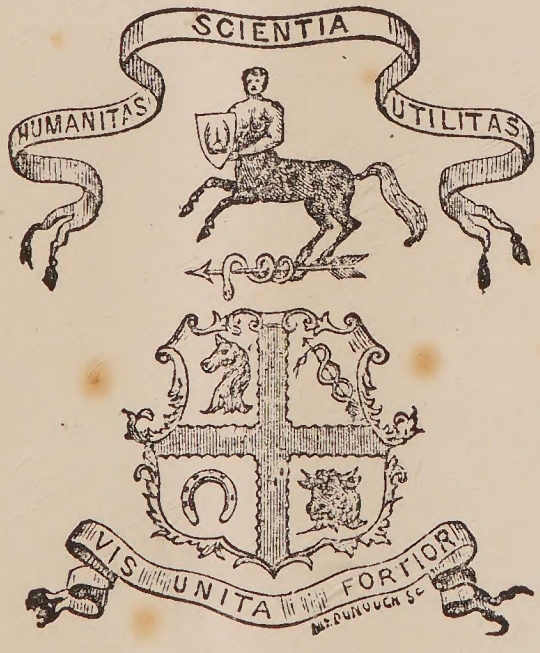
THE

VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

VOLUME XX., 1885.



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JANUARY, 1885.

CASES TREATED WITH PHYSOSTIGMIÆ.

BY J. NETTELTON, M.R.C.V.S., NORTHALLERTON.

THE alkaloid of the Calabar bean—physostigmiæ—was introduced into veterinary practice by Professor Dieckerhoff some time ago, and lately an useful hypodermic injection has been offered to the profession by Messrs. Hewlett and Son, London.

Having treated several cases with this preparation, and taken notes of some, they may perhaps interest a few readers of the VETERINARY JOURNAL.

Case No. 1.—A black, aged farm gelding which I attended, I found suffering from impaction of the bowels. On my arrival, some nine miles out, I was told the animal had been suffering from colicy pains for twenty-four hours previously: ʒvi. of Aloes, two pints of Ol. lini., and ʒvi. of Ether nit., had been given at intervals, but to no effect.

Having had no experience of physostigmiæ, and knowing the quantity of medicine already given, I naturally felt timid about injecting a full dose, so used only ʒi., and waited to see the result. For the first twenty minutes I found no change, but afterwards the animal became more restless, continually getting up and down (which had not been the case previously, only at intervals); movement of gases were heard in the bowels, slight perspirations set in, the pulse rose from fifty to fifty-eight; this condition lasted about an hour, when the animal settled down to its former state, apparently neither better nor worse for my

treatment. After waiting another hour I gave a draught composed of the extract of Belladonna, nux vomica, and water, and left three more to be given at intervals. On my visiting the animal next day I found it quite easy; the bowels had acted three times, but no purgation set up. This case was by no means a satisfactory test as to the utility of the physostigmiæ.

Case No. 2.—A five-year-old mare, six miles out in the country, which, on my arrival at 9 p.m., I found had been taken ill that day at noon; an ordinary colic mixture had been given her, but she became rapidly worse, the abdomen was considerably distended with gases, cold perspirations bedewed the body, extremities cold, membranes highly injected, the animal pulseless and life fast ebbing out. I told the owner her condition, and advised him to have her put out of misery; this he would not consent to, but wished me to give her something, so I injected ʒii. of physostigmiæ and left. The owner told me afterwards that the bowels had been relieved, and the abdomen had settled down to its normal state about an hour after I gave the fluid, but pain continued until she died about three hours after my leaving her. This case I consider far more satisfactory than the previous one, so far as testing the drug is concerned; although useless as a remedy for inflammation of the bowels I still had hopes of its being beneficial in cases of impaction.

Case No. 3.—A brown hunting mare, nine years old, my own property, suffering from impaction of the stomach, caused by carelessness in feeding on the part of my groom. On my finding her with all the symptoms of the above affection, I administered Ether nit. ʒii., Tr. aconite ʒi., Ol. lini. Oi., Aloes ʒv. Four hours afterwards, there being no improvement, gave a draught composed of Ether nit., extract belladonna, and water; repeated this draught three or four times at intervals, also gave more Ol. lini. Eighteen hours from the commencement, no improvement, the abdomen distended with gases, pain very great, and to all appearance the mare was fast sinking. I now injected ʒiii. of physostigmiæ, and was obliged to leave her for three hours. On my return I was told that the animal had suffered greater pain for the first hour, and had passed fæces three times during my absence. She was now suffering very

little, and improved from this time, although there was no purgation set up.

Case No. 4.—A bay harness-mare, five years old, suffering from spasmodic colic, with bowels inactive. I administered at the onset ʒii. of physostigmiæ, and waited to see the result. In fifteen minutes the mare became more restless, breathing increased, profuse perspirations over the whole body, movement of gases were heard in thirty-three minutes, fæces in small quantities were passed; in forty-five minutes much pain, more fæces passed; in sixty-four minutes more fæces passed, pain less, perspiration ceasing. The mare from this time improved rapidly, without further treatment.

Case No. 5.—A bay cart-gelding, the property of a corn merchant in Northallerton. I found the animal suffering from Flatulent Colic, with bowels inactive, caused by being fed on Indian meal. I gave Aloes ʒv., Ol. lini. Oi., Ol. terebinth ʒii., Ether nit. ʒii., Tr. aconite ʒi. I saw the horse two hours afterwards; former symptoms aggravated; gave draught as before, aloes and oil excepted; three hours afterwards abdomen enormously distended, pain greater than ever, no action of the bowels. I now injected physostigmiæ ʒiii. I had, however, no opportunity of learning the after symptoms, until three hours afterwards, when I was pleased to find the animal free from pain, semi-fluid fæces had been passed three times; ten hours afterwards bowels costive; in five hours more purgation set in, which lasted twelve hours. In this case I am convinced purging in the first instance was due to the action of the physostigmiæ, and latterly to the aloes and oil previously given. Most of those cases I treated with injections per rectum, but the last case is an exception.

I have treated several cases similar to the above with satisfactory results, but have not taken notes of them. However, I think those given will suffice to give to physostigmiæ a place as a valuable remedy in veterinary practice.

PEDAL FISTULÆ.

BY W. BRYDON, V.S., BOSTON, MASS., U.S.A.

THE VETERINARY JOURNAL for September contains the report of an interesting paper on "Quittor," read by Professor Walley at the quarterly meeting of the Liverpool Veterinary Medical Association, and afterwards ably discussed by the members of that body present.

Having had some experience in the treatment of this perplexing disease, perhaps I may be pardoned for making a few remarks on the subject.

In all cases of true Quittor that I have met with, the hoof binds the foot, especially at the heel, where the wall and bar at first interfere with the circulation, causing congestion of the soft structures and discoloration of the subjacent sole; finally, they crowd and injure the cartilage, and perhaps the wing of the coffin-bone—the quarter becoming diseased to such an extent that repair, in some of the structures involved, takes place slowly and by a kind of natural reproduction.

My observation has not shown me that bruises by the shoe, pricks, or treads are necessary factors in the production of this disease, although such accidents, or even aggravated diseases of the feet or of the limbs—such as scratches—may hasten its development, or otherwise modify and change its character.

In the treatment of this disease, I at first resorted to the heroic remedies generally recommended, but for the last ten years have practised a much less painful and more satisfactory method.

On examining a case, and becoming satisfied as to its character, my first inquiry is, when did the quarter first begin to swell and discharge? A satisfactory answer being received, I then inform the owner that, at the furthest, "the sinuses can be permanently closed in from five (5) to eight (8) months from the date of their first appearance." Although in some cases the hoof may not by this time be fully grown down, yet, with a little attention being given to it, the animal will then be able to perform slow work daily—the length of time required for treatment, and the degree of soundness afterwards, depending on whether the foot

was previously affected with or predisposed to navicular or other disease of a serious nature.

Treatment.

Remove the shoe and poultice the whole foot thoroughly with linseed meal and water, to which a little carbolic acid and glycerine have been added; level and trim away from the part all the horn possible, with the rasp and knife, but without drawing blood; especially cut well into the commissures. At the same time, weaken the whole hoof, which, in such cases, always interferes mechanically with the circulation and retards repair. Repeat occasionally the poultice, which may now be made of bran or small pieces of sponge, instead of the linseed, which I have an impression is sometimes injurious to the wall when frequently used. If seasonable, turn into a soft pasture as soon as the soreness subsides, using some easily applied paste dressing that will last well, and protect from flies, etc.; repeat the trimming of the hoof at least once a month. When the animal has to be confined in the stable, keep the hoof soft and clean; place it occasionally in an inch or two of boiling water for about three minutes, to stimulate the torpid vessels of the sole, and when the soreness subsides a light shoe can be applied and some slow work be performed.

Although some of my conclusions on the history of the disease may not be generally accepted, yet the fact remains that I have had only one case that did not recover, and that was a street-railroad horse last spring, which was sent by mistake an eight-mile trip, mostly on pavement, causing such extensive inflammation of the foot that the hoof sloughed off and the animal had to be destroyed.

If, as I believe, the disease "runs itself out"—if I may use such an expression—in time, it perhaps explains the wonderful cures of empirics after all others have failed, as well as some, if not all, of the success attending excision of the cartilage and other painful remedies, when performed or applied about the fifth or sixth month. For my experience is that the sinuses cannot be prevented from closing, even by a good deal of unnecessary interference.

The operation—excision of the cartilage—which I think was very popular at the London College at one time, and is still so in France and in New York, appears to me much more rational and surgical than the repeated tortures often used. The history of most cases I have read about, however, have not given the age of the "Quittor" at the time of the operation with exactness, if at all, to fully convince me of the certainty of its success.

The great objection to the treatment I have indicated, is that it is tedious ; yet it need not be expensive, and cannot well be more humane, until, by our knowledge of the proper management of the hoof under the varying circumstances to which it is exposed, we become able to modify and guide this living structure, from its birth to its maturity and after, so that all predisposition to such diseases will be avoided ; for I am strongly inclined to believe that there are feet in which it would be impossible for what we recognise as a true "Quittor" to form.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from page* 320, *vol. xix.*)

FISTULOUS parotid ducts may be a sequel to Strangles ; so may Glanders, Bronchitis, roaring, thick-wind, etc. The parotid duct is seldom diseased—at least, I have seen but few cases. When met with, however, it generally gives the practitioner much trouble. It is not probable a veterinary surgeon would overlook such an affection, except in the hurry of a fair, and the seller ranks with the knowing-ones. The first case met with by me was during my pupilage. Being dresser at the time, it afforded me an opportunity of collecting the saliva as it flowed from the duct during the process of mastication, and of ascertaining the quantity secreted by the gland. If my memory serves me, this case left the College cured. The cases seen subsequently were under my charge, and after considerable trouble and time yielded to treatment and did well. A horse with fistulous parotid duct is of necessity unsound. I have heard of carious teeth being mistaken for Glanders. I don't see exactly

how a carious tooth could be mistaken for this formidable disease, so as to warrant a veterinary surgeon condemning a horse to the hands of the slaughterer ; nevertheless, I have read such a statement, although unable at the moment to point to the record thereof. There are symptoms which are analogous to those of Glanders, such as a discharge from one or both nostrils, which, being offensive to the smell, may possibly lead an examiner to infer that the case was of long standing, and that either the cartilages or the bones themselves were implicated. I should imagine, if this were the case, other symptoms would be present which would corroborate or strengthen the opinion so formed. This has been my experience, and I have never met with much difficulty in the matter.

There is another affection which, doubtless, has often caused the life of many horses to be sacrificed; namely, abrasions of the Schneiderian membrane. This is occasionally met with in severe cases of Catarrh and in Strangles. In such affections it will be well to look carefully for other and unmistakeable symptoms before recommending the destruction of a patient. In the other case, that of a carious tooth, there is occasionally much difficulty in forming a correct diagnosis, from the position the animal assumes, and from the fact of his being awkward and shy when the head is handled. A ready means of examining a suspicious case is gained by throwing him down.

I have not met with young horses suffering from carious teeth; indeed, it is a complaint not frequently heard of in this country. An animal labouring under this affection would, for the time being, be considered as unsound.

Bronchitis sometimes remains as a sequel of Strangles, and which, if not removed, would cause the animal to have some difficulty in passing veterinary surgeons as to soundness, and it would most probably become chronic ; which necessarily deteri orates the value. The diseases of the respiratory organs will come in for a share of consideration in their proper course.

Having alluded to some of the diseases which must usually fall under the notice of veterinary examiners, I must proceed to carry out the observations first intended by me. Some of the affections passed in review seem to call forth remarks that were

not premeditated, and this caused a deviation from my proposed plan. Our next step will be the examination of the eyes. I must confess I approach this subject with diffidence, feeling how important it is, and how little understood by the public generally. When we take into consideration the structure of the visual organ, and the little we know of its functions, together with the fact how few of us have made the science of optics a study, and also the cursory manner the eyes of horses are examined, as well as the many difficulties presented to us when the animals are undergoing such scrutiny, I repeat, I feel diffident in introducing the subject to the readers of this Journal.

There are several modes employed by persons to examine the eye, but all of them aim at the same object, namely, that of ascertaining whether the eye be a sound one or not. I don't believe I am far out when it is asserted that very few examiners trouble themselves about an eye, provided it is free from actual blemish. And, if neither opacity of the transparent cornea nor of the lens is present, and the eye is pretty clear, as a general rule, the horse passes sound as regards the eyes. In order to make myself understood, it will be necessary to consider, in the first place, the structure of some of the parts; afterwards to offer a few observations upon the eye as an optical instrument; otherwise, in all probability, some of the remarks may appear somewhat strange, and perhaps novel. The eye is divided into the globe and its appendages. The globe is composed of tunics and refracting media, called humours. The tunics are three in number, viz., 1st, sclerotic and cornea; 2nd, choroid, iris, and ciliary processes; 3rd, retina and zonula-ciliaris. The humours are also three in number—aqueous, crystalline lens, and the vitreous humour. The sclerotic and the cornea form the external tunic of the eyeball, and give to it its peculiar form; the sclerotic invests four-fifths of the globe, and the cornea the remainder. The first named is a dense, fibrous membrane, thicker posteriorly than anteriorly; it is continuous posteriorly with the sheath of the optic nerve, which is derived from the dura mater; it is pierced by the optic and ciliary nerves and ciliary arteries; anteriorly, it presents a bevelled edge for the reception of the cornea; the anterior surface of the sclerotic is

covered by the tunica albuginea, which is formed by the expansion of the tendons of the four straight muscles; the tunica albuginea is partly covered by the conjunctiva. At the entrance of the optic nerve the sclerotic forms a thin, cribriform lamella, which is pierced by a number of minute openings for the passage of the nervous filaments. One of these openings is larger than the rest, and is situated in the centre of the lamella, which is called *porous opticus;* it gives passage to the *arteria centralis retina.* The cornea is the transparent projecting layer which forms the anterior fifth of the globe. In form it is circular, being *concavo-convex;* it is pierced by its thin, sharp edge within the bevelled border of the sclerotic. It consists of four layers:—first, the conjunctiva; second, the cornea proper, which is constituted by several thin lamellæ, connected together by an extremely fine, cellular tissue; thirdly, the cornea elastica, which is a fine, elastic, and exquisitely transparent membrane, exactly applied to the inner surface of the cornea proper; the last is the lining membrane of the anterior chamber of the eyeball. The choroid is the vascular membrane of a black, soft, and delicate texture, situated immediately under the sclerotic, to which it is connected by a very fine, cellular tissue, and by the passage of nerves and vessels. Internally, it lies in simple contact with the retina; it is pierced posteriorly for the passage of the optic nerve; it is connected anteriorly with the iris, ciliary processes, and with the line of junction of the cornea and sclerotic, by a dense, white line, called the ciliary ligament, which surrounds the circumference of the iris like a ring. The choroid is formed by three layers—an external or venous layer, termed *vena vorticæsa,* which layer is that connected to the ciliary ligament; secondly, the middle or arterial layer, made up principally of the ramifications of minute arteries, which is called the tunica "Ruyschiana." (This membrane was discovered by Ruysh, who was born at the Hague in 1638, whose whole life was spent in making injected preparations. He discovered this layer as before stated, hence the name.—Wilson.) The reflections of this layer, form the ciliary processes. The third and last layer is the *pigmentum nigrum;* it is a delicate membrane situated internally; it presents several colours spread over the choroid, which are

known by the names of pigmentum nigrum and *tapetum lucidum;* this latter is situated above the termination of the optic nerve.

(*To be continued.*)

CHLOROFORM: ITS USES AS AN ANÆSTHETIC IN VETERINARY PRACTICE.*

BY R. ROBERTS, M.R.C.V.S., KENDAL.

My object is not to bring before you a long paper, but to put in as plain, concise, and practical a manner as possible the subject, which is, I think, of great importance to every veterinary surgeon, looking at it from a humanitarian, scientific, and useful point of view. The object of anæsthetics is, as far as possible, to minimise pain and suffering during surgical operations, and to relax muscular contractions when dislocations are to be reduced, and I may add to these, the rendering of operations less dangerous to the veterinary operator. In a paper recently read by Mr. Banham, before the Norfolk and Eastern Counties Veterinary Medical Association, he said: "Most of us admit that the veterinary profession is one of the best in existence from a humanitarian point of view, since no stronger proof of human kindness can be shown than that of relieving dumb animals of their pain and suffering." With this object before us, and the rendering of operations easier and less dangerous to the operator, I have chosen this subject for the basis of my paper, as I have during recent years largely used chloroform in my practice, and can safely say that it is of immense advantage to both operator and patient. I do not propose to enter into the chemical composition, nor the scientific discoveries made by Professor Simpson and others, nor of the prophylactic uses to which chloroform may be put, but simply to speak of it as an anæsthetic and relaxer of voluntary muscular tissue, and to describe it to you as I have used for the purpose of minimising or totally preventing pain during operations. I do not mean to say that its properties are not fully known to every person in this room, but, at the same time, I am aware that it is not used one-thousandth part

* Read at a meeting of the Border Counties Veterinary Medical Society.

of what it might be, and that with the greatest benefit and safety—indeed, it is the exception to the rule to hear any one say that he uses it, it being looked upon as more of a bother than anything else. This, in my opinion, is to be referred to the mode of administration. The old method was, so far as I have seen practised, first to cast the animal, and to secure its legs; afterwards to give the chloroform largely mixed with air. During the excitement there was usually a tremendous amount of struggling before the patient was put under, even more so than when chloroform was not used. The plan that I have followed is, first, to secure the horse's head, having a good halter on each side, securely fastened so that he cannot slip them off. A good strong assistant having hold of each halter is necessary, as, during the period of excitement, the animal may be rather boisterous, and if not securely fastened may get away. I then place the nosebag, containing a sponge, on the horse's nose. This is fastened by a strap which passes over the horse's head, the same as an ordinary muzzle. The nosebag itself has no holes punched in it for the admission of air. When this is done, I pour into the nosebag about two ounces of chloroform and immediately plug up the space around the top of the nosebag and the horse's face, thus preventing as much as possible the admission of air. In Mr. Finlay Dun's work, it is recommended that twenty parts of air to one of chloroform be admitted during inhalation; but I find that this is not necessary. This direction has, I think, caused a great deal of the distaste with which its use is generally viewed by veterinary surgeons. I have put under the influence of chloroform some scores of horses and cattle, and have found it quite safe to exclude the atmosphere as far as I possibly could, and cause them to inhale nearly pure chloroform vapour. In this way it will be found easier, and almost quicker, to cast and put into position an animal for operation, than can possibly be done by hobbles, stocks, twitches, holding up the legs, etc. I think that an animal can be placed under chloroform in nearly, if not quite, as little time as is necessary for these modes of restraint, to say nothing of the saving of pain to the animal, safety to the operator, and the unpleasant sequences of broken backs, thighs, ruptured stomachs, and bloodvessels.

After two or three minutes, the animal shows signs of excitement, pricks his ears, neighs, and stares about him in a lively manner. This is succeeded by staggering of the hind-legs, which quickly also attacks the fore-legs, and presently the animal reels over, and by-and-by becomes comatose. If the first dose (of from one to two ounces, according to the size of the animal) be not sufficient, a little more may be poured into the nosebag; the sponge will suck it up, and give it off gradually in the form of vapour. This may be repeated from time to time, as often as is necessary, according to the length of time the operation is likely to take. I have seen an animal suffering from painful disease of the bowels kept insensible for two hours. It is necessary during administration to keep an eye on the respiration, and to pay attention to the pulse. The state of sensation may be judged by attempting to touch the cornea, and when it becomes insensible to the touch, the animal may be deemed in a fit state for operating on. Should by chance the animal get too much chloroform, artificial respiration may be resorted to, and cold water dashed over the head and body. I think this very unlikely to occur in animals having such capacious lungs and strong hearts as have horses and cattle, fatty degeneration and disease of the bloodvessels being of very infrequent occurrence amongst them.

Anæsthesia may be *partial* or *complete*, according to the desire of the operator, or the necessity of the operation, which may be of a major or minor character. For many minor operations, it is not necessary to put the animal thoroughly under the influence of chloroform, but it may be so anæsthetised as to render a small operation to be performed practicable, without danger to the operator.

I have in this manner fired horses' hocks, docked, etc. The operations for which I have used it are chiefly as follows: Castration, parturition, firing, docking, neurotomy, reduction of dislocations and herniæ, removal of tumours, operations on the eye, and returning the uterus—in fact, I believe it to be practicable in every sense, and under every condition, in which it is applied in human surgery.

Castration.—The chloroform may be administered as before directed; a rope may be fastened to one hind-leg, so that it may

be lifted out of the way of the operator, and whilst the operation is being proceeded with, the animal may lie partly on its side. There is no struggling, consequently no need to secure the legs. By this means, broken backs and thighs may be entirely avoided. The operation can also be performed in much less time than when the animal is struggling, and without the fear of the cord being wrenched from between the clams, and danger of hæmorrhage ensuing. Every colt that I have castrated this year has been done in this way, and I can assure you with no little relief to myself, for after a man has castrated from four to six, he usually begins to feel very fatigued and tired, the whole of the work of fastening and tying the legs falling on him. I very much prefer this to the operation in the standing position, and I have operated upon several "rig" horses in this way.

Parturition.—In difficult cases of parturition the administration of chloroform is an invaluable aid, as it relaxes the muscular contractions, and prevents "pains" which militate adversely against the accoucheur, often allowing mal-presentations to be reduced without any difficulty. The same remarks apply to reversion of the uterus, where the animal uses its powers so strongly against the operator.

Firing.—Firing may be accomplished with the limbs in a straight position, thus allowing the operation to be nicely performed, and, as in other cases where chloroform is used, without that violent struggling which is so dangerous to the well-being of the animal.

Docking.—Docking I consider to be essentially necessary to the safety of man. I should be sorry if I had to use undocked horses myself, and I consider that docking enhances their value. If done in a proper and scientific manner, I do not see the slightest objection to the operation, the pain of which may be entirely nullified by the use of chloroform, and at the same time it gives the operator a chance of performing the operation in such a way that complete recovery and cicatrization may take place in from twenty-four to forty-eight hours. This may be accomplished by laying back a flap of the skin of the under surface, amputating at a joint, taking up the bloodvessels, and

securing the flap by sutures, and applying an antiseptic pad to the stump.

Neurotomy.—I have operated under chloroform with complete success, so far as pain and struggling are concerned. I cannot say that I am in favour of the operation of neurotomy, yet it is an operation in which it may be used with the greatest benefit.

Dislocations.—I have met with a good many cases of dislocation of the hip joint, probably eighteen or twenty, and I find chloroform to be of the greatest service in their reduction—indeed, I believe so great is the antagonistic force of the gluteal and other powerful muscles, that it would be next to impossible to reduce them without its use.

Hernia.—The reduction of strangulated hernia I have seen accomplished by the internal and topical use of chloroform.

The removal of tumours, operations on the eye, and other surgical operations too numerous to mention, can be performed with the greatest ease, as the animal is put into a state of quiet and repose. Indeed, it is an invaluable agent in the hands of the skilled practitioner.

Now that our profession is awakening from the torpor in which it has indulged for the past thirty or forty years, and it has got a charter, which allows those who have had no education to practise as veterinary surgeons, it behoves every educated or qualified veterinary surgeon to keep this idea before him—to try by all means to advance the welfare of his profession, and to widen the gap between himself and the uneducated. I look upon the judicious use of chloroform as being a great power in his hands for the accomplishment of this purpose, as it can only be safely used by those who have been educated to use it, and the public by-and-by will so much see the importance that they will not allow their animals to be operated upon without its use. Many of my clients now request, when an operation has to be performed, that it be used.

TUBERCULOUS MILK.

BY J. HARRISON, M.R.C.V.S., WESTMORELAND.

IN the November number of the VETERINARY JOURNAL, the article under the above heading by Mr. Macgillivray, of Banff, N.B., criticising Dr. Imlach's propositions pathologically advanced in relation to Bovine Tuberculosis, will, no doubt, have been read with interest, if not with curiosity, by many practitioners, more especially those practising in country districts where that disease is continually cropping up. I have read Dr. Imlach's "Report," as published in the September number of the VETERINARY JOURNAL, and compared with Mr. Macgillivray's production commenting on the fallacies of the paper, a very invidious comparison is glaringly apparent. I should very much doubt whether Dr. Imlach will suffer himself to take any notice of it, but the strictures placed on his thermometrical and experimental researches are certainly of such a character that the veterinary profession ought not to let them pass unchallenged, more especially as he has been (from the Register) a practising veterinary surgeon for some eighteen years, and the whole tenour of his paper is intended to (in his own estimation) stamp himself as an authority, as to the way and manner in which Tuberculosis is conveyed from the bovine species to the *genus homo;* and that, he concludes, is by the inhibition of milk from tuberculous cows. Mr. Macgillivray, in the second paragraph of his article (page 309), states that Dr. Imlach's experiments are *nil*, owing to incomplete data, and in the third paragraph he, in unmistakable language, calls into question his thermometrical observations. Now, in my experience, the vaginal temperature of tuberculous cows previous to dysenteric complications becoming established, is almost invariably, if taken on the *quiet*, on and off about 100° F., but when Dysentery supervenes, either as a concomitant of a tuberculous deposit or a fluky liver, the temperature goes up one or two degrees, and is continually varying till the animal is exhausted and in *mortis extremis*, when the temperature may and does drop to 97°, or even lower. Consequently, as an adjunctive aid in diagnosing tuberculous cattle, without "taking stock" of other pathological conditions, the thermometer is a

completely valueless toy, and will lead the practitioner, *ignis-fatuus* like, into a "bog," if he has no other faculty of observation than the mechanical one of seeing with his eyes the figures indicated on the instrument. This same remark applies with equal force when the instrument is depended on as a settling point in diagnosing diseases associated with pestilential or Typhoid Fever, as in some of those which come under the Contagious Diseases (Animals) Act. Nevertheless, I am quite prepared to admit that the thermometer is a very valuable, convenient, and quick aid in determining stoppages or changes in the treatment of disease, both in man and the lower animals; and so far, on the aggregate, my observations with this instrument accord with those reported by Dr. Imlach in cases of Tuberculosis in cattle. What about the astounding assertion Mr. Macgillivray makes as to the "natural" bovine temperature being "102°"? Unless the "black runts" about Banff are as "wild as hawks," with skins as cold as clay, and a consuming fire in their interior, surely he could never obtain a normal temperature of 102° F. in any given number of animals. It is inconceivable that he was serious when he wrote it. Besides, if this were really the fact, where is Arnold, Maw, Mackey, and a host of other instrument-makers? They surely ought to be severely reprimanded for misleading veterinary surgeons by placing their "bits of arrows" on their thermometers at 98·4° F. as the normal gauge. In Westmoreland, so far as my observations go, the instrument-makers are right, and Mr. Macgillivray is wrong. I shall not further follow Mr. Macgillivray in his arguments, trying to prove the worthlessness of Dr. Imlach's experiments, as, pathologically, physiologically, and practically considered, they do not even touch the fringe of the question, as to whether the "sale of milk from tuberculous cows" ought to be stopped, because of its being a vehicle capable of conveying the bacilli or virus of the disease to human beings, especially children, and that is the purport of Dr. Imlach's researches. I may be pardoned, and not considered by the profession egotistic, if I, as a country practitioner, add a few additional ideas bearing on the question, seeing that Dr. Imlach's researches are left at the conclusion of his report in a negative

form and requiring further investigation. Considering the nature of bacilli, not only in Tuberculosis in cows, but in every other infectious disease affecting cattle, to be an excretory product, the specific virus being thrown out of the system by those means only, it stands to reason that, if the udder—which is essentially a secreting organ — is free from tuberculous nodules, and the animal shows no tenderness when being milked, that however poor and defective the milk may be in cream, fat, and sugar, *it is, for what it is worth*, safe food for either calves or children, and no bad effects need be apprehended, that is, if the calves or children are of strong constitution and free from any hereditary blood-taint. But this is not always the case ; it not unfrequently happens that the udder of a tuberculous cow is more or less charged with nodules, and if these tuberculous nodules soften, and discharge their contents into or on to the surface of the *tubuli lactiferi*, it is certain that the virus will be conveyed into the milk canals which converge in the teat, and thus the fluid becomes dangerous as food for any animal, let alone the human species. And I have, in virtue of my office as Inspector, and in accord with the "Dairies, Cowsheds, and Milk-Shops Order of July, 1879," forbidden the sale of the milk of such an animal as I have described. I have also, in making *post-mortem* examinations of animals (cows) which have died from the disease, found tuberculous nodules in every stage of development, down to the total breaking up of the mass, in their udders ; consequently, I have no hesitation in saying that each individual cow affected with Tuberculosis requires to be examined by a competent veterinary inspector, in order to determine whether her milk is fit, or not fit, for human consumption. Short of this ordeal, no amount of investigation, whether scientific or otherwise, will quiet people's minds as to the purity of the milk which they buy ; and with a precaution such as this, the inspector may expect to have his judgment very frequently severely criticised.

OBSERVATIONS ON A CASE OF PULMONARY APOPLEXY.

BY ARTHUR SHAWCROSS (PUPIL OF MR. J. B. GRESSWELL, M.R.C.V.S.), LOUTH, LINCOLNSHIRE.

THERE are, perhaps, few diseases to which the horse is liable which are at once so alarming, and at the same time so amenable to active treatment, as Acute Congestion of the Lungs, accompanied by severe hæmorrhage from rupture of the pulmonary capillaries. And there are also, perhaps, few diseases upon which sequelæ are so liable to supervene as is Pulmonary Apoplexy in its worst forms, to be followed by Acute Inflammation of the Lungs.

Acute Congestion of the Lungs—as in most instances—was in this case, regarding which it is my intention to make a few remarks, due to the fact that the animal had suddenly been called upon to perform work in excess of its power while in an untrained condition.

I was called in on Thursday evening, December 5th, to a six-year-old half-bred, highly plethoric mare, which had just arrived from a journey of twenty-eight miles. I found her gasping for breath, and standing with outstretched limbs. The pulse, feeble, fluttering, and irregular, varied from 130 to 170 beats per minute, and soon became more rapid; it was at times quite imperceptible. The respirations were much accelerated, being from sixty to seventy per minute. Snychronously with the expiratory acts, a jugular pulsation could be strongly felt on each side of the neck, and was distinctly audible. Blood was issuing from both nostrils, but ceased to flow about half an hour after the mare arrived at her destination. The extremities were very cold, the tongue was darkly coloured, and the dyspnœa became so distressing that death seemed imminent.

Bleeding was clearly indicated, and I accordingly forthwith removed eight pints of blood from the right jugular vein, and then administered Sulphuric ether ʒii. and brandy Oss.

Until 6.30 the symptoms continued to be very severe, and the animal appeared to be in great pain.

The pulse was now quite imperceptible, and the legs and ears were icy cold.

On Mr. Gresswell's arrival at 6.30, three pints more of blood were abstracted, and the stimulants were repeated.

The legs were briskly rubbed, and rugs wrung out from hot water were assiduously applied to the chest.

At 7 o'clock the pulse was distinct and regular, and numbered eighty beats per minute. The jugular pulsation had almost ceased.

At 7.30 the mare seemed much easier ; the pulse fell to sixty-five, and the respirations, though still accelerated, were diminished, and not nearly so laborious.

At 8 the pulse was fifty-five, and the breathing was still easier.

The stimulant remedies were ordered to be repeated, and the hot cloths to be renewed every two hours throughout the night. Every time the rugs were removed the sides were briskly rubbed with mild stimulating liniment.

On Friday morning early, the pulse was forty, and the mare seemed easy and was eating her mash eagerly. In the evening, between 7 and 8 o'clock, the mare had a distinct rigor, appeared to be dull and dejected, refusing all food. The pulse again rose to 60; the respirations were again accelerated, and the animal, though warmly clad, trembled all over. The temperature, as yet not much elevated, rose to 104° F. ; and there was dry cough at intervals. Pneumonia seemed impending.

Febrifuges were now administered, and hot cloths were again applied throughout the night. On Saturday the pulse again fell to 48, and the temperature to 101·5° ; and on Sunday morning the mare seemed to be much better. On the following day the temperature and pulse were normal.

In Mr. Gresswell's opinion, the mare had very narrowly escaped an attack of Pneumonia.

Of the characteristic features which this case presented, the intense jugular pulsation, synchronous with the expiratory efforts, was not the least remarkable. And the rapid manner in which this reflux venous pulsation ceased after the repetition of the bleeding, was especially noteworthy.

"BURSATTI": RECORD OF CASES DURING 1883.

BY RICHARD WM. BURKE, M.R.C.V.S., A.V.D., INDIA.

(Continued from page 326, vol. xix.)

Such authorities as have attempted to define what the abnormal stimulus which produces this Cancer change in the cells of the skin consists in, find themselves unable to draw a hard-and-fast line as to what certain degree of irritation must be applied to produce it. All that we can be legally certain of, with the present amount of absolute knowledge regarding the disease, is that it must be somewhat below that irritation which gives rise to true inflammation, and that it must be continued and peculiar. These are the three qualities which may be said to characterise the irritation of Cancer.

Dr. Carpenter, who is so ardent a believer in this view of the question, attempted to produce the peculiar irritation by artificial means, for the purpose of testing the validity of the theory, and he all but succeeded in two instances. Dr. Mosely has described a peculiar form of Cancer which occurs in the West Indies, and has demonstrated in the most particular manner that this irritation may be produced by the sting of a fly common to those islands. Mr. J. Burke has certainly shown that the most perfectly developed *kunkurs* have been produced in the human epidermis covering the scalp by the sting of mosquitoes, and has clearly described their formation, and proved that they are in no way dissimilar to the *kunkurs* met with in "Bursatti."

Mr. Smith, V.S., 12th Royal Lancers, instances the cases of two old Arab stallions, examined by Mr. Meyrick. In the internal organs of these animals "*kunkurs*" were found to exist, taking his stand upon which foundation, he cavils at the idea of "specificity," and proclaims that they are general to horses. Mr. Meyrick himself tells us in his communication (VETERINARY JOURNAL, 1878, vol. ii.) that both these animals during life presented numerous melanotic tumours over different parts of the body. And there are still some differences of opinion among the most competent pathologists, with respect to the question of whether or no *Melanosis* is only one form of Cancer proper. See also cancerous deposits associated with Melanosis in the *sheep*

(*Veterinarian*, July, 1868, p. 437). We want an answer to the query as to the percentage of cases where the previous *history* was forthcoming in which "*kunkurs*" were found, before we can determine as to the precise significance of these bodies under the conditions enumerated.

I would here assert the analogy of *kunkur* to the peculiar bodies met with by Mr. Abernethy in the course of his examination of one form of Cancer in man he has especially studied, and called "Tuberculous Cancer"—"tubercular," not because they claimed any connection with that actively destructive malady, so described by Virchow, but because they bore a general resemblance to tubercles, though differing from these latter in all else. Also to the distinctive onion-shaped body found in a certain variety of human Cancer (closely related, probably, to that of Mr. Abernethy), which has received mention at the hands of Billroth, Wilx, and Moxon, and others, and which possesses certain conclusive clinical and histological analogies in addition. Its chief characteristics have been described as follow:—

"(*a*) That it presents peculiar bodies composed of flattened cells disposed concentrically so as to form a scaly-walled globe, whose appearance is like the section of an onion, or like a bird's nest.

"(*b*) These are so large as often to be visible to the naked eye.

"(*c*) When they are numerous and well characterised they are diagnostic (Billroth).

"(*d*) The stroma preponderates over the epithelial part, and may be called schirrus of the skin" ("Lectures on Pathological Anatomy," by Drs. Wilx and Moxon, p. 656).

Those who have attended to the subject of "Bursatti," will at once recognise the extraordinary similarity it bears to the Cancer now under consideration, and to such as are inclined to take exception to this statement, I will merely address the question, Wherein lies the dissimilarity? The one crucial test is that the very thing that is described as diagnostically characteristic of Bursatti—I allude to the presence of the peculiar hard bodies called "*kunkur*"—has had the attention of Billroth directed to it,

to the extent that he has pronounced it to be diagnostically characteristic of a certain variety of Cancer as it affects man. I have therefore come to the very natural and thoroughly logical conclusion that the disease described by me, and those described by Billroth and others, are one and the same, with this distinction, that while mine is equine, theirs, on the other hand, is met with in the higher animal, man!

It now, therefore, resolves itself into the question of whether the physicist, the chemist, or the physiologist is the better suited to explain the mode of growth and development of these bodies. In my humble opinion, I should give the preference to the last-named. If we examine into the sources of the information that has hitherto been elicited on the subject, the reasons for the choice I have made will be both evidenced and justified. *What have the physicists done for us in this matter?* They have certainly made the weighty and momentous discoveries that these bodies are hard, and rough on the surface; that they are of varied sizes, shapes, and forms; that they are brittle, and, to the naked eye, not unlike bony structure; and that they chip off when struck by a piece of metal! Of its origin, the character of its growth and development, its clinical and pathological significance, they are absolutely ignorant, and preserve a discreet silence in respect to them. And, further, on one head they have actually misled us. They have stated it to be bony in appearance, and this statement is not capable of standing microscopic test. The exclusive physicist, therefore, so far as we know him, we do not find to be essential to the life of the science of this disease.

ii. The *chemist*, on the other hand, has informed us of the presence of certain salts that enter into its composition, and that this presence is heightened by the age of the *kunkur*, *i.e.*, the older it is the more inorganic is its composition; and this advances us by another step into the region of our knowledge of the disease. It teaches the fact that during the peculiar disease changes that manifest their presence in certain cells of the skin, and occurring by a process of absorption, according to some pathologists, or deposition as contended for by others, there is gradually "secreted" in and among these cells, and by a system

of abstraction from the blood, certain salts (inorganic matter). Whether this accumulation is to be attributed to an excess of inorganic materials in the blood or otherwise is not yet finally determined, conflicting opinions prevailing among all the authorities on the subject. Although, therefore, we are still ignorant as to the causes of this result (the only agreement being that it is universally considered to be due to the blood), we are possessed of knowledge as to its effects of a very much more decided character. Professor F. W. Beneke's* investigations of Cancer have certainly gone a long way towards removing much of the mystery that hedges around the question, yet, comparatively speaking, so little is that "much," that we are apparently, and for all practical purposes, as far as ever removed from the solution of the problem which involves the determination of the precise causes for this inorganic detritus in Cancer cells. The Professor has pointed out to us the facts that in the greater number of cases of Cancer there may always be observed, during the primary stages of the disease, great development of the body, activity of the liver, and a decrease in the size of the lungs; while in the secretions there are contained large quantities of alkaline and earthy phosphates, which, he is of opinion, may very reasonably be held to account for the excess of these ingredients in the cancerous cells. If this may be taken to be an approximate estimate of things, it will readily be seen that it opens up a vast field for the future labours of pathologists, and that to a comparatively large proportion of our suffering animals it lengthens almost indefinitely a vista of hope in the not very remote future; for what would be necessary would be a consistent treatment by "*regulated dietary*," which must be reduced to such sustenance only as is the poorest in albumin.

Questions have been introduced during this controversy as to the occurrence of specifically-shaped crystals in "*kunkur*." We were not aware that "specificity" in the shape of the crystals was an indication of aught else than that particular salts very constantly predominated in these "*kunkurs*" in consequence, as we have just mentioned, of their presence in the

* "Pathology and Treatment of Cancer," by F. W. Beneke, Berlin, 1880.

blood ; but then we are further aware that the blood of various animals yields, in its *natural** state, variously-shaped crystals, and the occurrence, therefore, of crystals of this or that shape adds but little to the pathological information on the subject of which we are already possessed, it being a concomitant of health, or, in other words, a purely physiological product, and unconnected with the process of disease.

iii. The *physiologist* looks to the root of the origin of the peculiar disease process, and helps to elucidate the secret of the manner of its growth and development, and strives to explain its causation. And in this instance he puts to himself the question : If irritation, the result of the action of soot (as in Cancer as developed among chimney-sweeps), if that arising from inhalation of the smoke of a short, heated pipe—in short, if irritation such as that defined by surgeons generally as laying the foundation-stone, as it were, for the genesis of Cancer change, evokes that destructive disease in the epidermis of man, what is there so dissimilar in that irritation arising from the stings of flies, that it should be incapable of producing as dire results in the case of the horse ? And the justification of experience is, I can frankly state, on the side of this theory, if we will only consider how exactly proportioned is, sometimes, the abundant invasion of these insects to the prevalence of the disease ; and, on the other hand, how all measures directed towards the destruction of the insects, and prevention of the mischief attendant on their presence, tend to abbreviate very appreciably the chances of the malady assuming an "enzoötic" character, that is, of its attacking large numbers of horses simultaneously.

In unison with the exposition of the most eminent surgeons as to the nature and pathology of Cancer, I was led to devise means for the solution of the problem under present consideration, and which I take to be the secret of the production of bursattic *kunkur*. And I have endeavoured to define it as *the product of an augmented endogenous cell-growth in a part the seat of an applied stimulus of a peculiar degree ;* this stimulus, in many instances,

* Consult Dr. Hoppe Seyler's "Handbuch der Physiologischund Pathologische-Chemischen Analyze" ; and "Lehrbuch d. Physiolog. Chemie," vol. i., 2nd ed., 1853.

being manifestly afforded by the sting of a fly, similar in its effects to those of the hot pipe and soot in the part these play in the development of human Cancer. The deposition of calcareous salts from the blood on this newly-formed cell-product forthwith renders conspicuous its contour, and so we now have formed little bodies, which are as foreign to the part in which they are soon to become imbedded as they are destructive, and so deleterious withal as to raise formidable barriers in the way of the salutary repair of the tissues. Acting as do foreign bodies, and being amenable neither to absorption nor to removal by the knife of the surgeon, they greatly retard the process of normal repair in the wound that is resultant on the accompanying surrounding ulceration. And thus, even when by the overlapping of the skin union be established, the irritation at work around each of the embedded *kunkurs* shortly induces death of tissue, and degeneration which, by confluence, causes *slough*, the result of which is a renewed ulcer; which, in its turn, and in a similar manner, is followed by imperfect repair and renewed tissue-slough, and, eventually, unless it be eradicated by an exceptional surgical success, when it terminates in permanent resolution (?), the whole feature of the disease is merged in fresh recoveries and renewed attacks, and the death of the animal becomes a question of time. All that tends to promote constitutionally the strength of the animal, and bring about active repair of the degenerating tissues, will aid in creating fresh "recoveries," and thus we find that favourable climatic conditions, and the skilled assistance of surgery combine in materially curtailing the period of the obstinate course of the disease. But, alas! how often have even these two valuable auxiliaries been overthrown ultimately, and the disease reappeared—perchance with added vehemence.

But beyond exhibiting the properties of a foreign body, *kunkur* does not play the dire part of the cells not similarly circumscribed by calcareous deposition, but which, nevertheless, imbued with the change peculiar to Cancer, work hidden havoc by their pronounced tendency to infiltration of the adjacent parts, and to systemic invasion through the process of normal absorption carried on by the veins and lymphatics.

Minute microscopic investigation of these bodies reveals the fact that they consist of neither bony elements (Western), Scrofula cells (Hodgson), nor inspissated pus (Phillips), as was formerly believed to be the case on bases purely conjectural. While a fourth theory of their containing crystals of uric acid and oxalate of lime (Meyrick), and windmill-shaped crystals (Steel) has been accounted for in a preceding part of this chapter, it having been shown that their presence is due to an entirely accidental occurrence, and furnishes no fresh evidence bearing on the pathology of the disease phenomenon. We were unaware that crystals in morbid products were aught but a *result** of the disease, be it what it might; and therefore, I trust, under the circumstances, I shall be pardoned for the cursory notice I bestow on their presence. A mention that has evoked, perhaps, the strongest criticism in connection with this matter is: Why should the process of calcareous deposition be so pronounced in the equine patient as compared with that in the human? And, in answer, I would just reiterate my conviction, and I have my justification for so doing in the results of all clinical experience, that this is explicable on the ground that a special calcific diathesis doubtless obtains in the equine species which is less perceptibly present in the human; *instance*, the greater frequency with which exostotic growths occur in the equine subject. While the fact that either species alike possess this redundancy of inorganic material in the circulatory blood during certain periods, and under special conditions, and which is known as a *diathesis*, has received incontestable proof in the dissection and *post-mortem* room, as well as in the clinical wards. The greater liability in old age to fractures shown equally by the horse and man; of the removal of organic tissue, and its substitution by inorganic salts in cartilage; of the fusing into one of the various vertebræ of the spinal column from inorganic deposition taking place between and around them as a result of old age, whether in man or horse, are evidences corroborative of the fact enunciated.

* Pigmentary matter and crystalloid forms met with in Bursatti concretions are simply the products of normal blood, and indicate prior extravasation.

The characteristic disposition of the cells in the epithelial variety of Cancer to settle themselves in concentric layers, makes an opportunity for the calcareous deposition amidst them to convert them into conspicuous globular bodies—*visible nodules;* and I have on another occasion drawn attention to the process of this singular transformation in referring my readers to Dr. Green's work on "Morbid Pathology," pp. 193-4. See also "Lectures on Pathological Anatomy," by Wilx and Moxon, plate vi., *e* and *f;* also "Tuberculous Cancer" of man, by Abernethy, etc.

When, on the occasion of my reviewing the four theories as to "*kunkur*" at present propounded, I had an opportunity of placing my opinions before the readers of the VETERINARY JOURNAL, and of submitting to the test of their judgment my system of examination thereto, I was subjected to a considerable amount of adverse criticism, especially on the score of the "positive-*cum*-negative" method to which I had resorted, and because I pointed to some incompatibility, some antithesis between right and wrong. I will contend this, that where a question of science is placed before the public, it becomes the duty of all such as are competent by experience or knowledge to discharge it, to detect any flaws, should there be any, in the various views of the subject that are certain to be brought forward, and, when detected, to bring them to the general notice in a severe but just manner. That it is a breach of good taste to be too hard, more so than is warranted by the circumstance, I thoroughly feel and appreciate. Now, it is my purpose to bring before my readers in this place the theories to which I have just made reference, together with the course I adopted in regard to each. To take case

No. 1.—Veterinary Surgeon Hodgson contended that *kunkur* was made up of "Scrofula cells," and that during one or other of its stages of development it underwent fatty metamorphosis. Now the answer I gave this gentleman's theory was that, undoubtedly right as he was in stating that it was subject to fatty change, he was as undoubtedly wrong in his opinion, expressed without any microscopic examination of the disease, that it was composed of "Scrofula cells." His second theory as to fatty metamorphosis, and with which I concur, is easily explained, for we know that morbid products which are richly cellular in their

composition, when deprived of the normal blood supply, are predisposed to fatty change, which is often followed by calcareous infiltration.

Now as to theory

No. 2.—Veterinary Surgeon Phillips, as surgeon and abstract clinical observer, maintained that these bodies ("*kunkurs*") were so many little pellets of inspissated pus; and we may here remark that Mr. Phillips has also not thought it proper to subject his opinion to the test of microscopic examination. Further, I may remark that in former times it was the general opinion that the nodules in Tuberculosis were also simply masses of inspissated pus; but the development of the science of histo-pathology has now wholly dissipated that theory. And so I make no doubt that Mr. Phillips, imbued with this idea, readily fell into the belief that Bursatti concretions were in the same manner masses of inspissated pus. *These latter, however, are discriminated from among their counterfeits through the circumstance of their possessing no distinct intercellular substance.* Any one who has examined the minute structure of a Bursatti concretion during its various stages of development will be aware that, *in addition to containing cellular elements, it is possessed of an abundant intercellular substance or fibrous matrix, among other things, depending upon the stage of the development at which it is subjected to examination.*

No. 3.—Veterinary Surgeon Western has maintained that these bodies are so many centres of independent osseous development. This I have negatived by means of careful microscopic examination of the structure of the same during *all* their stages of development. Mr. Western, in coming to the above conclusion, has chosen to adopt the *rôle* of a mere physicist. He has brought himself to the maintaining of this, because of the fact that these bodies, in their later stages, are often hard to the feel, brittle, and chipping when struck by metal, etc.—properties that very naturally engage the primary attention of the physicist. Now I do not deny that bony transformation does take place during certain morbid developments; but I do maintain this, that in all the changes of "*kunkur*"-structure, I have never yet succeeded in convincing myself of the presentment of any process

resembling that of bony formation; while the brittleness and hardness are demonstrably due to chemical changes occurring in them during their progressive stages of development. When analysed, these bodies have discovered a percentage of a little over ten in the hundred of inorganic salts; besides which, any addition of acids to these bodies occasions an active effervescence, through the decomposition of carbonates. So that, whether we consider it from the point of view of its histology or that of its chemistry, the "bony theory" of *kunkur* becomes alike indefensible.

(To be continued.)

Editorial.

THE PRACTICAL EDUCATION OF STUDENTS AND VETERINARY SURGEONS.

We have, in the two former articles under this heading, pointed out the most prominent deficiencies, and we now desire to put forth hints, in the hope that some means may be adopted to save the country from being afflicted by so many incompetent practitioners. We have been frequently asked whether, in our experience, any college is pre-eminent for giving efficient practical instruction, and we have been compelled to answer in the negative. We may, therefore, reasonably submit that the system of instruction is radically bad. It is no use denying this fact, so obvious to all who give any consideration to the subject, and the pressing need is to form a remedy. Cannot some college take the initiative in doing this, which, we believe, would meet with substantial recognition? We have heard of students who, in their whole college curriculum, have never listened to a lecture on the age of the horse and other domesticated animals. Is this a proper state of affairs at this period of the nineteenth century, when to "know ages" is one of the most important duties of the veterinary surgeon? We who write this article have never held office among the examiners of the Royal College of Veterinary Surgeons, and we may, therefore, claim to impartially declare it imperative that the mistaken leniency which has thus far impelled them to pass incompetent students should cease. It is most unfair to the public; and when we remember that if the examiners pass a man, they, in the words of the diploma, certify that they have "found him fully qualified to practise the art and science of veterinary surgery and medicine," we see what an enormous responsibility they assume.

We see how incumbent it is upon them that they should not permit their feelings to be so biassed, or their judgment so warped, through fear of being taunted with the number of rejections, as to make them pass men they perceive to be incapable. The mistaken notion appears

to prevail in some quarters that, because so many students present themselves for examination, therefore a certain proportion should pass; but we say to the examiners, only pass those whom the public have a right to expect you to certify as competent men. Anything contrary to this is a pernicious idea, and there is not a shadow of foundation for it; not even the lowest and worst reason of all, that there is a dearth of veterinary surgeons in the country. On the contrary, there is only a scarcity of competent ones, whom the public will most eagerly welcome. We do not now say where the student would best learn the practical rudiments of his profession, but we do strenuously affirm that he should thoroughly know them before he is permitted to receive a diploma; and we have a right to look to the examiners to do their duty in this regard. If a student does not learn the practical rudiments of his profession before, or during, his college course of study, where and when is he to learn them? It is rumoured that some of our college teachers do not profess to enter much into the study of practical matters with their pupils, but that they give the scientific and theoretical groundwork, which the students can practically apply after gaining their diplomas. Surely there must be some mistake here, or the examiners must otherwise be expected to pass those who do not know the practical rudiments of their profession? Let us suppose a school of carpentry, with a number of professors who lecture on the various kinds of timber,—the best for making tables, chairs, and other useful articles, the best sorts of nails, glue, and other means of joining the various pieces together, or how to do this, and then, after a prescribed course, down come the examiners. Let us suppose that the latter, after applying their tests, then give diplomas, and their newly-constituted joiners go out into the world. Let us imagine that one of these begins business in our neighbourhood, and, in the faith of his having "passed the college," we send for him to repair some of our furniture, and, observing him going about his work in a bungling and extraordinary fashion, we ask him what he is doing, and suggest that he does not use his hammer or plane in a proper manner. If he should reply, "Oh, the professors of the college did not teach us, or make us do, these practical things; they said we should learn them by experiments on our employers' property, after we had obtained our diplomas"—should we continue to let them gain experience on our furniture, or should we not at once show them the door? What right, therefore, has any one to suppose that incompetent veterinary diploma-holders shall gain rudimentary experience by experimenting on the valuable horses and cattle of those who trust in them, because they have been certified as fully qualified to practise the science and art of veterinary surgery by the duly appointed examiners of the Royal College of Veterinary Surgeons? We often hear it said that the students at the various colleges nowadays do not know so many practical matters as students formerly did, because they come very often without any previous acquaintance with horses and cattle, and that this is the reason that so many newly-made veterinary surgeons are so wanting in practical and manipulative skill. Here, again, the examiners hold the key of the position. It is their mission to ascertain that the candi-

date for a diploma is *properly qualified*, and no mistaken feelings of leniency or compassion should lead them to pass incompetent men. No matter what outcries may be made against them for doing their obvious duty, they may be quite certain that, at least so far as a fair standard of practical requirement is exacted, they will be supported by the Government, by the public, and by the profession at large. It is unreasonable to think that the advocates of practical incompetency can gain the day. We may here remark that we are unable to see why the indispensable subjects we have mentioned cannot be taught with little trouble in our veterinary colleges. Doubtless, the manipulative and operative could easily be so, if systematic courses of instruction were given on such matters. Dr. George Fleming has truly described the manual details of operative veterinary surgery as, perhaps, the most important part of the profession of a veterinary surgeon ; and, further, says, "manual dexterity is as essential to him as to the surgeon of mankind, and it must be obtained in the same manner, in the dissecting-room, the hospital, and wherever and whenever an opportunity offers to perform, or assist in performing, an operation of any kind." A bitter cry comes from the public that so many veterinary surgeons are utterly incompetent, and it is loudly asked why the colleges do not turn out better practitioners. We must, in candour, give the right answer—now very generally admitted as correct by the members of the profession—and it is, that there is something radically wrong and defective in the system of instruction imparted to the veterinary student. The college course now occupies double the time it did twenty years ago : yet it is frequently asserted that there is no improvement, but, rather, the reverse, in practical attainments. Where is the fault, and who will be the first to supply the remedy?

BURSÆ MUCOSÆ.

BY PROFESSOR F. EICHBAUM, OF GIESSEN.

(*Continued from page* 338, *vol. xix.*)

Besides these globular or slightly compressed bursæ, we find the cylindrical tendon sheaths principally situated on the extension and flexion sides of the joints of the extremities. They are sheath-like bursæ which clothe the tendons and protect them from neighbouring hard bodies (bones, etc.). All these structures possess a distinct *synovial membrane* (the mucous or serous coat). The internal layer is smooth and provided with a few small papilla, the external layer is firmer, tougher, and forms a resisting fibrous covering, *su synovial tissue*. It is also called the *Retinaculum tendinum*, and is in connection with the aponeurotic covering and the ligaments of the joints or with the periosteum of the adjacent bones ; it serves to strengthen the tender synovial coat beneath, and to fix and hold the tendon with the sheath in its position. They vary in shape : sometimes they are elongated like the synovial sheath, at others they cross over the tendon like a bridge, when they are called *transverse* or *ring ligaments*. The extension of the retinacula are seldom more than the sheath itself, so that in the sheath many small gaps may sometimes be found at either end or in the centre. Under pathological conditions (for instance in Hydrops of the sheath) the

sheath projects beyond the support. Heinecke* calls these openings "endpforten" (end-gates), whilst those which occur in the centre of the fibrous band he terms "zwischenpforten" (intermediary gates).

The synovial sheath not only covers the internal surface of this *retinaculum* and the bone over which the tendon glides, but it folds itself over the tendon also. We can therefore distinguish two layers in every tendon sheath (just as we do with the serous membrane of the peritoneum or pleura), a parietal layer in connection with the retinaculum or bone, and a visceral layer covering the tendon; both layers being placed, as Henlé describes it, like one hollow cylinder within another, with their smooth surfaces towards each other, the space which normally exists between them having a small quantity of yellowish oily fluid (synovia) in it. When these sheaths are very long they contain arrangements whereby the tendon may be supplied with its necessary nutrition. This takes place in the following manner:—One part of the parietal layer—generally that covering a bone—doubles itself inwards, and forms a projection into the interior of the sheath, carrying the vessel with it in its centre, in a similar way to the mesentery doubling in from the parietal layer of the peritoneum to the intestines. This duplicature has received the name of "*Vincula tendinum*," "*Mesotenon*," or "*Mesotendon*." The shape of these duplicatures varies, either being flat and long, or more cylindrical, having between the layers a quantity of loose connective tissue; a complete space, however, is not always present between the tendon and sheath. We can find nearly every grade between a simple connective tissue covering the tendon and a fully-developed sheath. Thus the loose connective tissue surrounding tendons may form numerous spaces on the surface of the tendon, which are filled with a serous fluid. Examples of these early sheath formations may be found on the tendon of the *M. levator labii, Superioris proprius* (Supernaso labialis, *Fleming*), and to some extent on the flexors and extensors of the extremities of the horse. They may with propriety be called "*cellular sheaths*," as Günther† has suggested.

The tendon sheaths are, as already mentioned, the least changeable of all the forms of the structures under our consideration, for they can always be found in the fœtus. The microscopical examination of them is sufficient to show that their synovial membrane is thinner and weaker than the walls of the subtendinous bursæ. This is in unison with the circumstance that they are subject to less pressure than the Bursæ mucosæ, and also that they are considerably supported by the fibrous retinacula which surrounds them. Synovial papilla are seldom to be found on their internal surface. They are most abundant, however, on the anterior wall of the sheath of the perforans tendon, at the posterior part of the phalanges, and more especially at that part of it which covers the sesamoids, where it presents a velvet-like appearance; something similar can occasionally be seen on all sheaths, and in all situations in them.

When two or more tendons are placed together, they may be enclosed in a sheath common to them all, as, *e.g.*, the sheath of the perforans and perforatus tendons at the posterior surface of the carpus. In such cases the mesotendinous portion of the synovial sheath doubles on itself, so that it forms a closed sac between the tendons, thus they are united together by it. If a tendon divides into two or more branches, the sheath also divides, and accompanies and covers its own particular branch, as the sheath of the M. tibialis anticus (Flexor metatarsi). It has already been mentioned that the sheaths of tendons sometimes communicate with Bursæ mucosæ, and they may also communicate with joint capsules, as, for instance, does the sheath of the perforans with the true hock joint, and that of the M. extensor

* C. c., page 26.
† "Myologie des Pferdes," p. 34.

carpi ulnaris (external Flexor metacarpi) with the radio-carpal joint. Lastly, the wall of the sheath is, in many cases, more or less united to the tendon so as to form a *Bursa vaginalis*, as may be observed on the tendon of the perforatus of the hind limb where it passes the posterior part of the hock and fetlock joints, and on the tendon of the M. biceps brachii (Flexor brachii), and the tendon of the M. coraco-brachialis.

A similarity between the structure of these bursæ and joint capsules may be readily seen, even on a very superficial examination of them. In both cases there is a thin, delicate, transparent membrane with a subsynovial connective tissue, frequently containing fat, and an outer fibrous layer. Their internal surface is smooth, shining, and possesses papillous excrescences; the fluids found in each are, according to all authors, chemically and physically very similar, if not the same. Finally, the circumstance that Bursæ mucosæ are sometimes in direct communication with the capsules of joints or sheaths of tendons, ratifies the above assertions. Not only are there three tissues macroscopically the same in their anatomy, but their histological structure is the same, or at least very similar; so much so, that all works on anatomy and histology describe all three under the common terms synovial membranes or synovial sacs.

Bursæ mucosæ and B. vaginales offer great difficulties for microscopical examination, owing to the delicacy of the tissue, which is easily injured in manipulation. This, no doubt, has been the cause of much of the controversy respecting the structure of these tissues, and the place they should occupy in the classification of the organs and tissues of the body, which questions are very differently answered by various histologists. From a broad point of view, they may be classed with serous membranes, although some give them an intermediate place between serous and mucous, whilst others put them between the connective and serous tissues; and latterly they have been classed by Soubbotine with glandular tissues. Perhaps, before we relate the results of our own investigations, it would not be uninteresting to give a short account of the literature on the subject.

Bichat, in his "Traite des Membranes," divides the membranous organs of the animal body into three principal groups or systems:—1. The system of mucous membranes, and the external skin; 2. The system of the serous and synovial membranes; and 3. The fibrous membranes. He then divides the synovial membranes into tendon sheaths and joint capsules. Most anatomists have followed Bichat's classification, and it is the one commonly followed. Henlé,* in 1841, described the bursæ and tendon sheaths as "false serous sacs" (unechte seröse säcke), and considered them to be breaches of continuity in the connective tissue, not lined with epithelium except when they were continuous with a joint capsule, in which case the epithelial lining must be looked upon as a prolongation of that membrane. This latter view, however, was opposed by several authors who wrote about the same period; for instance, Bruns† and Gerber‡ describe an epithelial layer for mucous sheaths, as does also Reichert,§ 1843, and Bendz,‖ 1846, for the Bursæ mucosæ of the skin and muscles. The last-named observer found these bursæ, in horses and other domesticated animals, to be covered with a distinctly cellular epithelial lining, composed of transparent, flat, oval, or irregularly angular-shaped cells, varying

* "Allgemeine Anatomie," 1841, p. 364.
† "Handbuch der Allg. Anatomie," 1841.
‡ "Lehrbuch der Allg. Anatomie," 1841.
§ Müller's "Archiv," 1843.
‖ "Handbuch der Allg. Anatomie," 1846 and 1847.

in size from 0·0004 to 0·0008 of an inch (German), with a granular nucleus, and a dark nucleolus They are usually composed of a single layer, and not, as is the case in tendon sheaths, by several layers of cells. Kölliker* showed, in 1847, that both kinds of bursæ were only partially covered by an epithelial lining, which was mostly in a single layer, and owing to the close union of one cell with another, it was difficult to isolate them for examination. When this was effected, they were found to be polygonal cells from 0·004 to 0·007 lines in size, with round, easily-flattened nuclei from 0·0025 to 0·003 lines in size, and some small, flat granules. Kölliker then describes special places where these epithelial linings are wanting; for instance, he says they are absent both on synovial membranes and mucosæ bursæ, where they have a dull, yellowish appearance, resembling the nature of fibro-cartilage. The synovial capsules of joints comport themselves very similarly. Kolliker places the synovial sacs of the muscular system and joints midway between the simple connective tissue spaces and those of the serous membranes. His† also puts forward very similar views; he says the synovial sacs and the serous and vascular spaces are true internal spaces (Binnenraume) produced by a splitting of the germinal layer due to histological differences at these particular parts, and that these spaces are at first separated from their surrounding tissue by spheroidal cells, which, later on, become flattened. These cells, which have certain constant peculiarities respecting their origin, form, and function, differ so materially from the surrounding cells (even when they are first formed) that a special designation for them is necessary to point out their relation to the internal surface of the body; hence His called them "endothelium."

His places synovial formations between the serous cavities and simple connective tissue spaces. When they originate from mechanical influences, they are separated from the connective tissue, which becomes looser and more cellular the nearer one approaches the internal surface. The cells become pressed so close together that they resemble a many-layered epithelium; later on, these cells become flattened, just as we have seen the endothelium in the embryo does.

Recklinghausen discovered that the addition of nitrate of silver was sufficient to distinguish the connective tissue cells from the endothelial cells. Hüter‡ by this silver method of preparing the synovial membrane of joints, came to the conclusion that it does not possess an epithelial lining, but that its internal layer is composed of modified nucleated connective tissue, which, at first sight, has an appearance somewhat resembling the peculiar change which endothelium undergoes on the addition of nitrate of silver, hence he terms it "epithelial like connective tissue" (epithelioides bindegewebe). Hüter further excludes the existence of an epithelial lining, from the fact that the vessels of synovial membranes lie free, which is never the case in serous membranes; then again, when synovial membranes are treated with a solution of nitrate of silver, the intercellular substance stains a brown colour, which at places broadens out, and separates the clear spaces from each other. This appearance is often found in tissues which originate from mechanical causes, and Hüter called them "keratoid tissues," because they somewhat resemble the cornea after it has been impregnated with silver.

Whilst these conclusions were being disputed by Schweigger Seidel,§ who

* Kolliker, "Mikroskopische Anatomie," 1850, p. 229.

† Op. cit.

‡ "Zur Histologie der Gelenkflachen und Gelenkkapseln," Virchow's *Archiv*, Band 36.

§ "Verhandl. der Math-Phys. Classe der Gesellschaft der Wissenschaften zer Leipzig," Band xviii.

tried to show that a complete lining of regular nucleated epithelium existed, Böhm, on the other hand, denied it. Böhm examined the synovial membrane after adding a solution of salt, and found the inner surface was covered with a layer of cells. Their shape was either round or polygonal, and about the size of white blood corpuscles, in which nuclei could be distinctly seen. In places the cells lie so close together that their contours touch each other, whilst at others there are large spaces between them; in this way they appeared to be very irregularly scattered under the field of a microscope. He also noticed that this layer of cells was frequently broken by capillary vessels, and therefore looked upon them as modified connective tissue cells, which, owing to their regular arrangement, somewhat resembled epithelium, although they cannot be considered as such.

Albert,* on the other hand, asserts that the synovial membrane of joints possesses a nucleated cellular lining, which, of course, as Hüter has already declared, is not present on all parts of the capsule. The internal surface of the synoviales of tendon sheaths and the typical bursæ comports itself the same as the zone of the synovial membranes surrounding the heads of bone (Ansatz-zone), *i.e.*, the epithelial covering is wanting. Möller, however, after treating these sheaths with a $\frac{1}{2}$ per cent. sol. of osmic acid, as well as by the silver method, showed that endothelium existed on their inner surfaces.

The works of Tillmanns,† Steinberg,‡ Bentzen,§ Colommiatti, ‖ Reyher,¶ and Sluys,** are all worth mentioning.

To avoid repetition we will mention here that the four first-named say there is an endothelial lining to these synovial membranes, whilst Reyher and Sluys deny its existence. Most of these investigations were conducted with the synovial membranes of joint, as was also those recently published by Soubbotine.†† Soubbotine, however, extended his researches to the synovial membranes of many cattle, calves, and sheep; and discovered that in all these animals the free surface of these membranes was covered by nucleated cells of various forms and sizes, and generally several layers thick. In those places where the papillæ are few in number the cells are flattened, and thicker than ordinary endothelial cells. On the other hand, the papillæ themselves are covered with cylindrical and polyhedral cells, between which cupped cells (Becherzellen) can often be seen. The vessels in the synovial membranes are never uncovered on the surface, and Soubbotine agrees with Tillmanns on this point. Soubbotine does not class the synovial membranes with the serous, but says they are more closely allied to the glandular tissues, and looks upon joint capsules as enclosed glands.

From the foregoing literature it is evident that most of the authors have confined their researches to the synovial membranes of joints, whilst the boundary walls of the bursa are only mentioned in a comparative sense. It is only the older works, such as those of Bruns, Gerber, Reichet, Bendz, Kolliker, Albert, and Möller which specially treat of the structure of the organs in question, and these only with regard to their endothelial lining, and even here we find several contradictory statements.

* Stricker, "Handbuch der Lehre von der Geweben," S. 1230.

† Tillmanns, "Beitrage zur Histologie der Gelenke," Arch. f. Mikroskop. Anat., 1874. "Zur Histologie der Synovial-Membran, v. Langenbeck's Arch. f. Klin. Chirurgie," Bd. xix. "Untersuchungen ueber die Unzuverlassigkeit der Versilberungsmethode fur die Histologie der Gelenke, Virchow's Arch., Bd. 67. "Die Lymphgefasse der Gelenke," Arch. f. Mikroskop. Anat., Bd. xii.

‡ "Untersuchgn ueber die Structure der Synovial haute Mang," Dis. 1874.

§ Jaresber. von Hoffmann u. Schwalbe, 1875.

‖ *Ibid.*, 1876.

¶ *Ibid.*, 1874.

** *Ibid.*, 1876.

†† Soubbotine, "Recherches Histologiques sur la Structure des Membranes Synoviales." *Archiv de Physiologie Normale et Pathologique*, 1880, p. 532.

The older authors, before the introduction of the silver method of preparing specimens, positively held the opinion that an endothelial layer was present, whereas, since its use, Albert denies its existence, although Möller maintains it is present in the sheaths of tendons.

Whilst such different views as these are promulgated respecting the histology of these questionable structures, we thought some new investigations of these tissues in horses would be beneficial; therefore we venture to relate the results of our experiments.

(To be continued.)

Proceedings of Veterinary Medical Societies, &c.

CENTRAL VETERINARY MEDICAL SOCIETY.

At the annual meeting of the above Society, in October, Mr. F. W. Wragg was elected President; the Vice-Presidents being Messrs. J. Woodger, J. Rowe, C. Sheather, and Professor Axe.

A meeting was held at the First Avenue Hotel, Holborn, on the 13th November, the President occupying the chair. The other Fellows present were Messrs. H. J. Hancock, C. Sheather, J. Hall Brown, W. South, F. Ingersoll, F. G. Samson, A. Broad, J. Rowe, J. Woodger, G. Gray, Professor Pritchard, J. Broad, Arthur Broad, T. Moore, and J. B. Martin.

Mr. Wragg addressed the meeting as follows:—Gentlemen: It is my pleasing duty this evening to thank you for the great honour you have conferred upon me by electing me as your President for the ensuing year. I feel great pride and gratification at being called upon to preside over the deliberations of our Society; yet these emotions are considerably qualified by a sense of the responsibility attached to the position, and by a distrust of my capability to occupy it in the creditable manner required. This consciousness of my incapacity will, I hope, have the effect of stimulating my energies and zeal, so that when my term of office shall expire, I may retire from my post with a consoling reflection that I have done everything possible which could promote the interests of the Central Society. We have a large number of subscribing members, and I earnestly invite you all to actively co-operate with me in striving to keep this Society in the forward position it has so long honourably occupied. Not only is your presence required at our meetings, but I wish you to bring forward even more subject-matter for discussion than you have hitherto done. The benefit of Veterinary Medical Societies is manifest. They bring together a large number of the members of the profession to which we have the honour to belong, many of whom we seldom have an opportunity of meeting, and friendly greetings are exchanged; at the periodical meetings opposing views are discussed, and, by this means, we improve our scientific and practical knowledge, thereby helping to raise the professional status. I will claim your indulgence, gentlemen, for the brevity of my remarks, as the time at our disposal is short; and allow me again to ask you to let us have well-attended meetings, and abundance of topics of discussion. Above all, let those discussions be carried on with gentlemanly bearing, free from jealousy, remembering that we are all working together for the common good of our profession; so that at the year's end we may look back on our work with pride and pleasure, and feel that it has been accomplished with a zealous honesty of purpose. I will detain you no longer, gentlemen, but express a wish that all will enjoy a most pleasant evening.

Mr. W. South introduced to the meeting an apparatus for administering

to the horse inhalations of chloride of ammonia. It consisted of a three-pint glass jar, with a double-branched tube inlet fitted to the cork. The tube reached down within the jar just sufficiently to dip beneath the water within (about a pint). In the aperture of one branch was placed a solution of ammonia, in a pad of cotton wool, and in the other hydrochloric acid, similarly placed. To this was fixed a flexible tube, with a wooden nozzle, for introduction within the horse's nostril, the other nostril requiring closure by the hand. This form of inhalation has been tried, and found useful, by several medical men, in cases of Nasal or Eustachian Catarrh. The solution of ammonia used is B.P. (one part of Liq. ammon. fort. to two of water; the acid is the pure B.P.)

At the conclusion of the meeting, the Fellows, with several visitors, attended the annual dinner of the Society at the above hotel.

ALFRED BROAD, *Hon. Sec.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE concluding quarterly meeting for the year was held at the Queen's Hotel, Leeds, on Thursday, 30th October, the President (Mr. Parlane Walker) in the chair. The following members were also present, viz., Messrs. M. Naylor, Joseph Carter, J. W. Anderton, J. M. Axe, Peter Walker, G. Schofield, B. Smith, Joseph Freeman, W. Lodge, G. Carter, J. Scriven, P. Deighton, T. C. Toop, G. Whitehead, H. Snarry, Greenhalgh, G. T. Pickering, R. L. Robertson, A. W. Briggs, J. Bell, A. W. Mason, H. Pollard, T. Fletcher, J. H. Ferguson, and the Secretary. Mr. McCormick was present as visitor.

Apologies for non-attendance were received from Professor Williams, E. C. Dray, Danby, Jno. Freeman, Bale, H. Cooper, G. Bowman, H. and P. Carter, Jno. Schofield, and T. Greaves.

The minutes of the previous meeting were read and confirmed.

Mr. ANDERTON proposed, and the SECRETARY seconded, that Mr. Herbert Pollard, of Wakefield, be elected a member. Carried unanimously.

The SECRETARY proposed, and Mr. JOSEPH CARTER seconded, "That a letter of condolence from the members of this Society be sent to the widow and family of our late highly esteemed friend, Mr. Jas. Freeman." Carried unanimously.

Mr. A. W. BRIGGS read an able and practical paper "On the Treatment of Wounds." The essayist described the various descriptions of solution of continuity in the tissues principally coming under the care of the veterinary surgeon, and then went on to explain how the healing processes were effected. He advocated the constant use of cold water in lacerated, as well as in incised, wounds, and recommended the use of drainage tubes in deep wounds of the muscles and faschia. The essayist next described the nature and treatment of Sandcrack, advocating the wedge treatment as being very successful.

In the discussion, the main topics of argument were the treatment of deep sinuous wounds and Sandcrack. Messrs. J. S. Carter and George Carter, related cases of wounds deeply situated in the loins, treated successfully after gaining a depending orifice.

Mr. TOOP said he had been successful with using dissolved bone drainage tubes in Poll Evil and Fistulon Withers.

Messrs. Ferguson, Pickering, and the President continued the discussion on wounds. In the discussion on Sandcrack, Messrs. Ferguson, G. Carter, the President, Pickering, Schofield, Toop, Peter Walker, and T. Fletcher took part. Mr. Briggs replied to the various objections to his opinions, etc.

Mr. JOSEPH CARTER proposed and Mr. FERGUSON seconded a vote of thanks to the essayist. Carried unanimously.

The Treasurer submitted the financial statement for the year, shewing a balance in hand of £45 18s. 10d.

The election of officers for 1885 resulted in Mr. J. E. Scrivener, of Aberford, being unanimously chosen as president, Messrs. P. M. Walker, Ex-President, J. S. Carter, and S. C. Toop, Vice-Presidents. The Treasurer and Secretary were re-elected.

Mr. SCHOFIELD proposed, and Mr. NAYLOR seconded, a vote of thanks to Mr. Parlane Walker for his services in the chair during the year. Carried.

The members were entertained to a knife-and-fork tea, by invitation of the Leeds members.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE usual quarterly meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on Friday, November 28th, the President, D. M'Gregor, Esq., in the chair.

Present—Messrs. Wheatley, South Shields; Awde, Stockton-on-Tees; Dudgeon, Sunderland; Hy. Hunter, A. Hunter, Elphick, Gresty, W. Hunter, and the Secretary, Newcastle-on-Tyne. Messrs. Finney, Stewart, Marsden, and Woods were present as visitors.

The minutes of the previous meeting having been disposed of, the officers of the Association for the ensuing year were elected, viz., President, Mr. Elphick, Newcastle-on-Tyne; Vice-Presidents, Mr. Nisbet, Fence Houses, and Mr. Hedley, Darlington; Secretary and Treasurer, Mr. Gresty, Newcastle-on-Tyne; Auditors, Messrs. C. Stephenson and A. Hunter, Newcastle-on-Tyne.

In returning thanks to the members of the Association for his unanimous election as President, MR. ELPHICK said it was his intention to deliver an inaugural address on the occasion of the annual meeting, which will be held at 3 p.m. on 27th February, 1885, when he hoped to see a good muster of members and their friends.

Mr. GRESTY having returned thanks for his election as Secretary and Treasurer, Mr. Drake, M.R.C.V.S., was unanimously elected a member of this Association.

Mr. M'GREGOR proposed, and Mr. GRESTY seconded the proposition, that at the next meeting Mr. Marsden, M.R.C.V.S., be elected a member of this Association.

Mr. H. HUNTER narrated an interesting case of a horse that while under treatment in his infirmary for catarrh was attacked with colic, attended with such an amount of tympany that the animal's life was in danger. As a last resource Mr. Hunter performed the operation of paracentesis abdominis, inserting the instrument on the right side halfway between the point of the ilium and the last rib. On withdrawing the trocar the gas rushed freely out, and continued to do so for half an hour. The animal got instant relief, and ultimately did well.

Mr. W. HUNTER stated that he had repeatedly performed the operation, but was only successful upon one occasion.

Mr. STEWART stated that upon three occasions he had performed the operation, and each case was successful. He claimed for the operation to be successful it must be performed early, and not when the animal was in a state of collapse.

Mr. AWDE said that he had tried the operation of injecting medicines into the tracheæ of calves for the destruction of strongules, as recommended by some continental writers, but that in his cases the experiments resulted in failure.

The adjourned discussion on Mr. A. Hunter's paper on "Diseases of the Foot," read at the last meeting, was then resumed, and an interesting and animated discussion, in which all present took part, followed. In some remarks upon *seedy toe*, MR. ELPHICK pointed out the necessity of removing the shoes when examining a horse as to soundness.

A vote of thanks to the retiring President and Secretary for their services during their time of office having been given and acknowledged, the meeting terminated.

WILLIAM W. SMART, *Hon. Sec.*

THE SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE usual quarterly meeting of this Society was held in the London Hotel, Edinburgh, on Wednesday, November 12th, Professor Walley in the chair.

Amongst those present were Professors Walley and Williams, Messrs. Borthwick, Borthwick, jun., Grey, Aitken, jun., W. O. Williams, R. Rutherford, Anderson, of Glasgow, Thompson, A.V.D., Connachie, of Aytoun, Connachie, of Selkirk, Fingzies, Hutton, Cunningham, Cassels, Robinson, Jackson, Watson, Galloway, and the Secretary.

The minutes of the previous meeting were read and confirmed. The following office-bearers were elected for 1885:—President, Professor Williams; Vice-Presidents—Messrs. Hutton, Kelso; Fingzies, Lochgelly; and J. Aitken, Dalkeith. Professor Lewis was re-elected honorary secretary and treasurer. Messrs. Borthwick and Cunningham were appointed auditors.

It was agreed that the next conjoint annual meeting of the three Scottish Societies should be held in Glasgow some time in December, the date to be arranged by the Secretaries. It was also decided that the annual dinner of the Scottish Metropolitan Society should be held as usual in February.

Mr. HUTTON, Kelso, then read the following interesting paper on

Intra-Tracheal Injections in the treatment of Hoose in Calves.

Without entering into any detailed account of that common disease of the respiratory organs in young cattle, known by the various names, "Hoose," parasitic Bronchitis, etc., I desire at the present time to draw attention to the great advantage, or rather the positive benefit, which, judging from some experiments I have made, seems likely to attend the use of intra-tracheal injections. In reference to intra-tracheal injections, there appeared in a recent number of the *Veterinarian* the following:—"Like many other important discoveries, the system of tracheal injections was in great measure due to an accident. It is recorded that in 1817, at the Veterinary School at Lyons, some students were directed to kill a horse by injecting water into the trachea. This was attempted, but when the Professor went to see the result he found that seven or eight pints of water had already been injected without causing any apparent derangement, and before the horse fell about thirty-two pints had been introduced. The Professor repeated the experiment on several occasions, and found that animals so treated did not suffer any inconvenience, owing to the rapid absorption of the fluid. He concluded, therefore, that the injection of medicines into the trachea might be effective in certain cases of lung disease." It is tolerably well-known that for some years direct attention has been given to this subject. Many, I believe, like myself, have been deterred from carrying it into execution from want of positive evidence of its utility. Many, I doubt

not, have been rather alarmed from an idea that the injection of such materials as were calculated to destroy the strongyli in the air-tubes would inevitably produce so much irritation in the lungs and bronchii that the treatment would prove more fatal than the disease. To give confidence to those who may be in doubt, and to bring the matter under your consideration, is my object in bringing this treatment before you. Although many have at different periods used for various ends tracheal injections, it is probably to Dr. Levi, of Pisa, that we are indebted for the latest systematic attempt of their use in the parasitic affection known as "Hoose." I am aware that several in this country have experimented to a greater or less extent in this direction, and also in some diseases of a different character in other animals, so that the previous dread of the irritation likely to arise from passing fluids into the windpipe is not now so appalling as we previously believed it to be. In the cases in which I have employed remedies through tracheal injection, I may say that fair success has attended the method, not merely in the milder cases, but also in those where the effects of the parasitic invasion were marked by extreme prostration, and where nothing save a fatal termination was likely to occur has this treatment been beneficial. The operation is extremely simple and readily carried out, the materials employed being a mixture—oil of turpentine, tincture of opium, pure carbolic acid, and water—the quantity injected on each occasion being half-an-ounce, half of which would be turpentine. The instrument I have employed is the ordinary hypodermic syringe. I first make a small incision with the knife through the skin half-way down the neck, and pass the small trocar and canula through, between two of the tracheal rings. In those cases where the symptoms were most severe, one injection was made daily for three days. Decided improvement was manifest on the day after the first injection, when the dyspnœa, previously existing, gave evidence of disappearing, and a marked improvement in the appetite was noticed. The other animals not so manifestly distressed only received one injection, which seemed to have the desired effect of arresting the cough. The following is a brief note of the results of my experiments :—I operated on eight calves affected with "Hoose," all with temperature ranging from 103 degs. to 106 degs. Fahr., and all more or less emaciated. Two of the animals showed marked prostration, were off their food, and the dyspnœa was very great. I injected into the trachea of one of the two animals most severely affected half-an-ounce of the mixture before mentioned, and ordered it to have a little new milk and gruel. I saw it the following day, and found it a little better, and taking the milk and gruel at its own will. I gave it a second injection, and on the third day found it greatly improved. The previous distress disappeared, and cough less frequent. Gave it a third injection, and saw it three days after, when it was doing well, and temperature gradually falling. I ordered it to be put out to the field for a few hours daily. All went well until about a fortnight after, when a message came that the calf was taken ill again. On my arrival I found it suffering from chest complication, probably due to the animal being too soon turned out. Seeing the animal was sinking, and anticipating a fatal result, I told the steward to send me the lungs, etc., which he did. I found them slightly congested. No trace of any inflammation was seen at the seat of the operation, but a little serum in the bronchial tubes, and a few dead strongyli. The heart was also enlarged. The second of the two I treated in much the same manner, but injected the materials into the trachea every other day instead of every day (as in the former), until three injections were given, when much the same improvement was manifested. I may say there was a good deal of irritation of the bowels from the first, which seemed to improve along with the other symptoms until a few days after the last injection, when an attack of diarrhœa set in, which proved fatal. Three of the remaining six

got three injections each, the other three one each. They all did well. I may also mention that none of the animals got any other medicine save the injection into the trachea, but had they got a little tonic and stimulant more success would probably have attended the treatment. From what I have experienced, I feel certain that many other agents may be used in a similar manner, and without much danger of inducing pulmonary inflammation. There seems little doubt that the bronchial parasite may be readily destroyed without endangering the life of the host.

The paper was discussed by Professors Williams and Walley, Messrs. W. O. Williams, A. Grey, and the Secretary.

Professor WILLIAMS said they were very much indebted to Mr. Hutton for his address. He was sure Mr. Hutton was the first to bring that method of treatment under their notice. He had considerable confidence in intra-tracheal injection, which had been tried with good results, and recommended in its use the employment of turpentine suspended in an emulsion of oil, water, and potash for Hoose.

The CHAIRMAN said that he thought any experiments in this direction should be comparative if they wished to get at the relative value of this method of treatment, and that by inhalation and injection of medicament. He asked Mr. Hutton, who replied in the negative, if he had carried out any comparative experiments. He endorsed Professor Lewis' statement in reference to the use of intra-tracheal injections by Mr. Carlisle, as that gentleman had mentioned the matter to him twelve months ago. Referring to the mixture used by Mr. Hutton, the president said he thought there would be some difficulty in preventing the turpentine from separating, and that it would be dangerous to give it in oil (except it were emulsified), as the oil globules (as is so frequently seen in choking by linseed oil) would block up the bronchioles, and prevent the passage of air. He confessed his inability to credit the statement which had been made in reference to the impunity with which fluids could be introduced into the trachea, especially when the distressing and dangerous symptoms produced by the accidental introduction of even a small quantity of fluid, in the act of drenching, was taken into consideration, and said that he would prefer to use carbolic acid dissolved in glycerine; he had, in fact, introduced into the trachea of a sheep twenty drops of the acid in the dram of glycerine, with the effect only of causing temporary irritation by coughing. He further remarked that however successful intra-tracheal injection might be in *bronchitic invasion*, it could be of no service in *pulmonary invasion*, as it could never slack the embryos in the lung tissue or those embedded in the inflammatory products, and we well knew by experience that our difficulty did not lie in the destruction of the worms in their mature condition, but in the destruction of their embryos. He endorsed Mr. Grey's assertion in reference to the resistance offered by the embryos to destructive agencies, and stated that he had seen them alive in a piece of lung which was at the time in a state of absolute putrefaction.

Mr. GREY said that it was not very easy to destroy the embryos of the strongles. He had seen them resist the action of such powerful parasiticides as arsenic, alcohol, etc.

Mr. W. B. WILLIAMS, referring to the use of oil in intra-tracheal injections, said it might be used with impunity, as proved by some experiments lately carried on in France.

Professor WILLIAMS then read the following paper on—

Parasitic Gastric Catarrh.—Gastrorrhœa Parasitica.

A disease of the fourth stomach of the sheep, caused by the presence of the nematode worm called the *Strongylus contortus*.

The following is a short history of an outbreak of disease in sheep induced by this parasite, and to which my attention was called by Mr. Connachie, V.S., Selkirk, in March of this year, 1884.

It appears that the owner of the sheep in question had placed his lambs, after weaning time, upon a very luxuriant pasture, but from the nature of the autumn of 1883, which was very wet, the grass became rank and the soil damp, notwithstanding it had been previously well drained both on the surface and under ground.

After thriving well for some time, they began to lose flesh very rapidly, and give other indications of disease; they were then removed to another pasture of good clean grass, and shortly afterwards placed on turnips, oats, and Indian corn. This change seemed to have the desired effect, as they commenced to thrive and lay on flesh; but in the month of February, 1884, when nearly fat and fit for the butcher, the now hoggets suddenly presented signs of disease. Their appetite at first became capricious; they then ceased eating their food altogether, but would devour earth or any rotten or decaying vegetable matter. From this time other and more serious symptoms soon developed themselves, such as great restlessness, lying down and suddenly rising again, pawing with the feet, and showing signs of abdominal pain. The bowels now became very irritable, and from being constipated became very loose, the evacuations being like muddy water. At this stage a most unnatural desire for water was evinced, the sheep roaming about in search of it, and when driven away from it, immediately returning to it. Along with this insatiable thirst, there was also an almost constant desire to urinate, the urine passed being as clear as water. The cough now became hacking, but intermittent, each fit of coughing continuing until the animal succeeded in ejecting a quantity of frothy mucus, which relieved it for a time only, as the fits soon returned and became more frequent; during the intervals a flow of watery saliva continued to drivel from the mouth, accompanied by a constant grinding of the teeth, and a continual twitching of the nostrils and upper lips.

During the development of the above symptoms the hoggs had most rapidly lost flesh, the adipose and muscular tissues being rapidly atrophied; the abdomen becoming greatly distended, causing the animal to present a most miserable appearance. All the above symptoms increased gradually and steadily, until death closed the scene.

After trying various remedies without success, Mr. Connachie advised the owner, Mr. Elliott, Hollybush, Galashiels, to call me into consultation.

Before seeing the sheep in consultation with Mr. Connachie, one carcase was sent to the College for examination.

In the lungs of this sheep the *Strongylus filaria* was found, but not in great numbers; the parasites were also found in the blood-vessels of the lungs, causing embolism; and in the fourth stomach the *Strongylus contortus* was found in great numbers. After this examination I visited Hollybush, and saw several sheep in an advanced stage of the disease, and, in addition to the above symptoms, furnished by Mr. Connachie, found that the majority presented aggravated symptoms of œdema of the head, affecting the nostrils and interfering with the breathing, and involving the intermaxillary space and inferior cervical region as low down as the breast.

On making a *post mortem* examination of one sheep killed for the purpose it was found that the *Strongylus filaria* was absent, but that the true stomach (abomasum) contained a quantity of a dirty-looking fluid, in which the *Strongylus contortus* could be seen wriggling in great numbers.

The parasites were so small as to be seen in the fluid with difficulty by the naked eye, but by gently moving the walls of the viscus, the whole fluid

would seem to be one seething, fermenting mass of wriggling, moving worms ; while the body of the animal was very anæmic, the muscular tissue greatly wasted and very pallid, the fat fairly abundant, but presenting the very white appearance seen in Liver-rot and other anæmic diseases.

The *Strongylus contortus* has been studied in Germany by Gerlach particularly, and the following is a brief *resumé* of his conclusions.

The *Strongylus contortus* occurs in the fourth stomach of the sheep and goat, and when present in large numbers causes disease (*Magenwürmerseuche*). At the same time, as was first noticed by Gerlach, the *Strongylus filaria* is usually present in the lungs. In the summer the *Strongylus filaria* is most abundant ; in autumn the *Strongylus filaria* and *Strongylus contortus* are almost equally numerous; while in winter, the *Strongylus contortus* prevails, and the *Strongylus filaria* has almost disappeared. Hence the stomach disease caused by *Strongylus contortus* breaks out in winter and spring in those lambs which have survived the lung disease of summer and autumn.

These facts agree with what was observed at Hollybush, namely,—1st, The appearance of disease early in the autumn amongst the sheep. This would be due to the lung disease caused by *Strongylus filaria.* 2nd, The recovery of many of the sheep affected when the diet was changed, *i.e.*, when removed to a clean pasture ; and, 3rd, The appearance of the disease later on in the season, in February, 1884, and resulting from the *Strongylus contortus*, confirmed by the *post-mortem* examinations, in one of which only a few *Strongyli filariæ* were found.

From this connection between these worms, Gerlach was led to make the following experiments : — Eggs of *Strongylus filaria* were given to healthy goats and lambs, and four months after the feeding, *Strongylus contortus* was found to be present. From these experiments Gerlach concluded that *Strongylus contortus* could develop from the eggs of the *Strongylus filaria*, but opinions differ upon this point.

The name *Strongylus contortus* occurs first in the writings of Rudolphi, and the species was described from specimens found in the month of November in the fourth stomach of a lamb. Fabricius also found them in the intestine.

Description.—The body is cylindrical, red or white, and tapers very gradually towards the anterior extremity, where is the mouth which is unprovided with papillæ or other appendages, and leads into the muscular pharynx, rather more than 1 mm. in length, in a worm 25 mm. long.

The male is smaller than the female, and is from 10 to 16 mm. in length, and 0·2 mm. in diameter.

The terminal bursa consists of two elongated ovoid lobes, each of which is supported by five ribs, and attached to the left lobe is a smaller one, supported by two ribs. There are two spicules about 0 5 mm. in length, each one tapering to a fine point, which is slightly curved outwards. Under a high power each point is seen to be tipped by a small knob.

The female is from 18·30 mm. in length, and 0·3 mm. in diameter. The body tapers very suddenly to an extremely fine point, and about 3 mm. in front of this is the genital opening, furnished with two papillæ, of which the left is much larger than the right. The uterus is convoluted, hence the name *Contortus.*

Symptoms.—The symptoms of the stomach disease caused by the *Strongylus contortus* are, according to Gerlach, not sufficiently marked to allow of a certain diagnosis. The animals are languid and dejected, and tend to become lean and anæmic ; the excrement is thin and brown, mixed with slime, or at times with blood. At last cachexia occurs, and death ensues from starvation (*Erschöpfung*). On *post-mortem* examination the fourth

stomach is found with hundreds of the *Strongylus contortus* covering its surface.

Treatment.—Good food is recommended, *e.g.*, roasted malt, seeds, lupine hay or lupine seeds, and the following medicines :—

Chabert's oil	1 part.
Oil of turpentine	3 parts.

The dose being one tea-spoonful per day.

Kamala has been recommended, and the picrate of potash is highly spoken of by Zurn.

Rabe used picrate of potash in the small dose of 0·12 grms., or about 2 grains per day for three days, and was successful in his treatment. The picrate of potash was given in thick linseed mucilage.

The doses of picrate of potash as given by Zurn are—

For a lamb 0·30 grms. or about 5 grains.
For a sheep 1·25 „ or about 20 grains.

Divided into two doses per day.

It is now believed that the ova of these parasites, passed from the body of their host, retain their vitality in damp places only, and that where nice bites of green grass, such as that growing on the sides of open drains and damp spots in pastures otherwise dry, are sources of danger, the parasitic ova becoming ingested with such grasses. The prevention of the disease by the destruction of the worms should be attempted by first digging up, where possible, all such green grasses, and inverting the sods. 2nd. By a liberal application of salt to the land, and, where possible, an allowance of it to the sheep.

During wet seasons the above precautions are impossible, and all that can be done is to remove to the driest pastures, give corn where possible, and an allowance of common salt in the food.

Professor Walley, Messrs. Connachie, R. Rutherford, and Thompson, took part in the discussion which followed the reading of the paper.

Mr. CONNACHIE spoke in corroboration of Professor Williams' description of the outbreak at Hollybush. He recommended the use of salt for the prevention of the disease, and referred to the great importance of the study of the parasites which cause disease in the domesticated animals.

Mr. RUTHERFORD said he had seen worms similar in appearance to those shown by Professor Williams in myriads in the stomachs of Australian horses. These worms were generally found inside tumours.

Mr. THOMPSON had also seen cases similar to those mentioned by Mr. Rutherford.

The CHAIRMAN said that as the discussion seemed to be exhausted, he would give them his experience of this matter, which was not, even in this country, an original inquiry. In 1881-2, and long before that date, Professor Simmonds described a parasite whose habitat was the abomasum of the sheep, and which produced all the conditions described by Professor Williams, and which he designated the *Abomesi ovis*, or *Filaria denticulata*. The following year he, the President, assisted Mr. H. Edwards, of St. Albans, in the investigation of a disease amongst the lambs grazing in Verulam Park, and which they found was due to this parasite, and since that time he had seen it not only in England but in Scotland, and had traced outbreaks of disease to it, and advised as to treatment and prevention. Not only this, but the very first year he lectured on cattle pathology, and annually since that time, he had directed the attention of the students at the Veterinary College to the parasite. This so-called *Abomesi ovis* of Simmonds was the *Strongy-*

lus contortus of helminthologists, and a good description of it was given by Davaine, whose anatomy, however, differed slightly from that given by Professor Williams. The co-existence of several different species of worms was a matter of common experience. He exhibited specimens of the *S. hypostomus*, or rigid strongylus, taken from the intestines of a sheep (where it is very commonly found), whose body was also the host of tapeworms, flukes and bronchial strongyles. Another parasite commonly found in sheep (also alluded to by Prof. Simmonds), and specimens of which he exhibited, was the *Tricothocephalus affinis*. As to the probability of transmutation of *S. contortus* and *S. filaria*, he agreed with Professor Williams that the thing was absurd, unless as was sometimes found in the case of other strongyles, that the immature forms had a different habitat than the mature parasites. In reference to treatment, he had found nothing more efficacious than salt and iron, with salt as a preventive. If dropsy or anæmia existed, treatment could not be of any avail; it was too late to apply it then. The worm mentioned by Messrs. Rutherford and Thompson as being found in tumours in the stomach of the horse is the *Spiroptera megastoma*.

Professor WILLIAMS objected to the imputation that he had laid any claim whatever to the discovery of the *Strongylus contortus*, or the disease induced by it. He was perfectly aware the worm had been described years ago, and that it was known to Professor Simmonds. In writing his paper he had endeavoured merely to give greater prominence to an important point in helminthology, concerning which veterinary surgeons, as a body, in this country had very little knowledge.

The meeting terminated with the usual votes of thanks.

T. H. LEWIS, *Hon. Secretary.*

ONTARIO VETERINARY COLLEGE.

THE opening lecture of this College for Session 1884-5 was delivered on Wednesday, October 22nd, by Professor A. Smith, V.S., Principal of the College, at which a large number of students were present.

There are at present 192 students registered. It is evident, from the large number of young men presenting themselves for education in Veterinary Science, that the veterinary profession is becoming more interesting, and making greater progress, on this Continent.

The Veterinary Medical Society, in connection with the College, meets twice a week, for the reading of essays and communications.

The first regular meeting for the session was held on Friday, October 24th, at which the following gentlemen were elected as officers :—President, Professor A. Smith, V.S.; Secretary, William Wilson, Ballymoney, Co. Antrim, Ireland; Assistant Secretaries, Henry Piatt, St. Louis, Missouri, U.S.; A. L. Hunter, Hector, New York, U.S.; Treasurer, Charles H. Pierce, Grand Rapids, Michigan, U.S.; Librarian, Llewellyn D. Williams, Pontypridd, South Wales; Assistant Librarian, George Standish, Esqueezing, Ontario.

WILLIAM WILSON, *Secretary.*

PATHOLOGICAL SOCIETY OF LONDON.

Uterine and Ovarian Disease in Animals.

At the meeting of the above Society held on the 18th November, Mr. J. Bland Sutton read a paper on Uterine and Ovarian Disease in Amphibia, Aves, and Mammalia. He exhibited a series of specimens which served to show that flexions of the uterus are not confined to the human race. The first was an example of retroflexion in a macaque monkey; the second specimen showed acute anteflexion in a bonnet monkey; the third, acute lateral flexion of the uterus to the right side, also in a monkey. In the last two specimens, the pelvis was considerably distorted, as a result of Rickets. Two other specimens, illustrating anteflexion of the uterus, were taken from deer: one from a hyomoschus, which had, a short time previous to its death, given birth to a young one; the other from a molucca deer. The pressure of the anteflexed fundus in the last case had caused atrophy of the anterior wall of the uterus. The uterus of a kangaroo was shown, in which both Fallopian tubes had become greatly distended on account of the accumulation of caseous material in their interior, due to some obstruction of their openings into the uterine cavity. Some of the contents of the tubes had probably leaked into the peritoneal cavity, and had given rise to fatal Peritonitis. Mr. Sutton stated that Ovarian disease was not uncommon in animals born in confinement, but seemed to be very rare in "wild animals." He observed that it had long been shown that some cysts in the broad ligament frequently arose from abnormal distension of the tubules forming the "organ of Rosenmüller" (the parovarium). He had made an investigation with a view to determine how far the notion of cystic dilatation of tubules having no functions held good. The results, briefly stated, were that male toads possess the remains of Müller's ducts in a well-marked degree; and it was no uncommon thing to find these ducts, which in the male toad had no function, dilated in their lower third into cysts, some very small indeed, but others of considerable size, and affording indisputable testimony to the origin of cysts from pre-existing ducts. About 250 frogs and toads were examined to test the point, and about ten well-marked examples of the cyst were found; they were, as a rule, arranged symmetrically. In birds, as in frogs and toads, upon the Müllerian ducts devolved the duty of conveying the ova from the abdomen to the outer world. In the embryo chick there were normally two oviducts; but the left duct alone persisted, whilst the right one usually disappeared, though now and then a small rudiment of the lower end, from a quarter of an inch to an inch long, remained attached to the cloaca. It might become the seat of cystic change, and in some cases assumed considerable proportions. The occurrence of these cysts was by no means unfrequent; and their presence was injurious, for a cyst might become detached, and set up fatal Peritonitis. A curious fact, first pointed out by Hunter, was occasionally noticed; a hen bird would lay aside the sober plumage of her sex, and take on that of the cock. This fact had been attested by several naturalists of eminence; and Mr. Sutton exhibited a drawing of a hen golden pheasant now living in the Zoological Society's Gardens. Two years ago she assumed the resplendent dress of the male bird, the only difference being that there was no white rim to the pupil, and no spurs. She lived quite happily with her mate, and they did not fight. This singular change was always associated with disease of the ovaries or the oviduct. In mares, cysts in the mesosalpinx were so frequently found that in fifty old mares, taken at random, two-thirds possessed cystic ovaries, the cysts varying in size from a grape to an orange, and in number from three or four to a dozen. Careful examination of these cysts had convinced him that they arose by dilatation of the tubules of the

parovarium, brought about by the increased blood-supply to the ovary in old age, due to the dilatation of the ovarian veins, much as was seen in the prostate of men advanced in life. Among other animals, he had met with cystic ovaries in a tiger that was born in this country and lived in confinement for twelve years. The cysts were small, numerous, and pedunculated, resembling the incipient cysts so frequently seen about the ovary and Fallopian tubes in virgins. Cystic tumours were also shown from a cat, a goat, and a tree-porcupine. He had brought the facts before the Society, not as mere curiosities of disease occurring in animals, nor as interesting in that they illustrated truths which might *à priori* have been anticipated, but because they demonstrated, unquestionably, that there was a strong tendency for ducts having no function to dilate into cysts.

Mr. ALBAN DORAN observed that in the human female atrophy or removal of both ovaries was not invariably followed by loss of the attributes of femininity. In examining the hypertrophied broad ligament attached to ovarian tumours he had observed that large or small thin-walled cysts were often developed between the layers of the broad ligament far from the parovarium and even above the Fallopian tube. Yet such cysts were certainly developed, in other cases, from the extremity of the horizontal duct of the parovarium. Cysts of the vertical tubes of that structure of the hilum of the ovary and of Gärtner's duct always appeared to contain papillomatous growths. There was no doubt that the parovarium existed in woman as a part of the Wolffian body, that Gärtner's duct was generally persistent though impervious, and that the duct ran into the walls of the uterus, passing through the cervix, and then entering the cellular tissue of the vagina, where it ended in a blind extremity. Sometimes it made a turn on itself and ended in the same manner in the cervix, not reaching the vagina; this variation depended upon the extent to which the lower part of the fused Müllerian ducts developed into uterine, at the expense of vaginal structures. The pair of tubes in the walls of the human female urethra lead to ducts, and have probably nothing to do with Gärtner's ducts. These "Skene's tubes" were subject to catarrhal affections.

Dr. DAWTREY DREWITT referred to the acquisition of male characteristics by female birds in whom there was disease of the ovaries or oviducts.

Mr. FREDERICK EVE spoke of large tumours formed at the expense of persistent Müllerian ducts. The hydatid of Morgagni about the epididymis was generally believed to be the dilated upper extremity of Müller's duct. Many encysted hydroceles of the testicle were derived from the organ of Giraldès.

Mr. SUTTON, in reply, said the cysts contained clear coagulable fluid, but no papillomata. The remains of the Wolffian bodies in the hilum of the ovary might be the source of origin of papillomatous growths. Gärtner's duct might develop a cystic growth about its termination near the vagina.

PROCEEDINGS OF THE SECOND GENERAL MEETING OF THE NATIONAL VETERINARY ASSOCIATION.

(*Continued from page* 378, *vol. xix.*)

England is now the centre of attention, from the fact that this country is endeavouring, by legislative measures, to suppress maladies which have been the scourge of the civilised world. Lectures have been delivered, papers read, and searching discussions entered into upon many great and important matters bearing upon diseases of domestic animals. They have been the means of bringing out ennobling and elevating thoughts, eliciting and developing a vast amount of light upon disease and the laws of its propaga-

tion ; and it must follow that our country will derive substantial and solid advantages. We cannot afford to lose opportunities such as these in making our profession more and more useful and valuable to society. The whole profession is watching with a great deal of interest the proceedings of this Association. We are all adult men, experienced in the needs of life ; we know the value of the knowledge of employing instruments as delicate, and manipulating them with a precision as dexterous as in the highest walks in our sister profession. It is true, there are some great men in our profession, who have laboured unintermittently for years, who have luxuriated in doing good, whose greatness is far too little known and honoured ; who have devoted, and are devoting their valuable lives, and still more valuable talent to the patient analyses of the causes of some of the more obscure diseases in animals, with the object of discovering the most sure and merciful method of alleviating their sufferings, as well as the most simple and efficacious methods which can be taken to remove the curse of the various epizootic and enzootic diseases. Some of these men have assented with the most ready and cheerful acquiescence, to help on this great and good work by writing these excellent papers, and joining in the discussions which are now to take place.

The detection of an error, the establishment of a fact, the determination of a doubtful principle in the nature of disease, may spread its benefits over large portions of the human race, and be the means of increasing the happiness of unborn generations. Whether it is recognised by scientific men or not, domestic medicine, as applied to animals, is an institution which cannot be abolished; it is essential also that we should fully ascertain, and fully understand this undoubted truth, viz., that the animal organism possesses in itself a most wonderful power of reparation. This is accepted as a fact beyond all question by men of the highest scientific attainments, that there may be a subsidence of disease naturally, and that wounds may heal naturally in a healthy state of the system, without the aid of medicine. The process cannot always be accelerated by man's help, though it may (and we must never overlook this great truth) sometimes be easily retarded.

The discussion will now take place upon the four great and important subjects which have been selected by your Committee, and written upon by some of the most eminent men in our profession ; such papers, having been printed and distributed amongst the members, will be taken as read. I would observe here, that it is my wish, and also the wish of your Committee and Council, that the discussion, whilst it shall be full, thorough, and searching, shall be conducted in an amicable and kindly spirit, and that each member will, individually, observe that our rules preclude too long a speech on any of the subjects.

MAJOR SUBJECT I.

PUBLIC HEALTH AS AFFECTED BY FOOD SUPPLY OBTAINED FROM ANIMALS.

BY JAMES MC CALL, F.R.C.V.S, PRINCIPAL OF THE GLASGOW VETERINARY COLLEGE.

IT is generally admitted that food, air, and water are the most important elements in the maintenance of health, and under adverse conditions it must be conceded that they are frequently important factors in the production of disease.

To enter into details, and to point out how the bodily organism of man is affected, or supposed to be affected, by the animal food of which he partakes,

would be an exercise far beyond the time at my disposal; so that I shall restrict my remarks to a brief consideration of a few of the more important diseases which render the flesh of cattle, sheep, and pigs, in certain stages at least, unfit for human consumption, and prejudicial to public health.

Trichina Disease in Man.

The discovery of this disease as a *post-mortem* lesion—"white, stony concretions in the muscles"—is generally ascribed to Tiedmann, in 1822, but it was not until 1835 that Paget and Owen demonstrated the parasitic nature of the malady. In its fully-developed and sexually mature state the male "Trichina spiralis" measures $\frac{1}{18}$ of an inch, and the female $\frac{1}{8}$ of an inch in length. They inhabit the intestinal canal of numerous warm-blooded animals in great numbers, and on the second day after their introduction attain their full sexual maturity. In six days the female parasite will contain perfectly developed and free embryos in the interior, numbering from ten to fifteen thousand, and these, on attaining full size, are born. Soon after birth they bore their way through the walls of the intestines, and then through the walls of the abdomen, and finally locate themselves in the interior of the muscles, and here, after fourteen days, acquire the size and organisation of the well-known Trichina spiralis (Leuckart).

"As commonly observed in the human body, our young trichinæ appear as spirally-coiled worms in the interior of small globular, oval, or lemon-shaped cysts, which latter appear as minute specks scarcely visible to the naked eye. These specks resemble little particles of lime, being more or less calcareous according to the degree of degeneration which their walls have undergone. The eggs measure on an average $\frac{1}{78}$ of an inch in length by $\frac{1}{130}$ of an inch in breadth. The capsuled trichinæ measure $\frac{1}{25}$ of an inch in length by about $\frac{1}{630}$ of an inch in breadth" (Cobbold).

In Germany, and some other Continental countries, owing to the inhabitants partaking of raw flesh as sausage-meat and other imperfectly cooked forms, the disease to which this parasite gives rise is not infrequent, and indeed, on the authority of Rapprecht, thirty-one epidemics occurred in various towns in Germany during the first six years following the discovery of the parasite.

The pig is, of all domestic animals, most frequently affected with trichinæ, and the ingestion of the flesh of this animal by man, in a *raw or imperfectly cooked* condition, is certain to give rise to Trichinosis, and the flesh of the human subject has been used by numerous experimentalists to propagate the disease to cats, dogs, rabbits, pigeons, swine, cattle, and sheep.

In this country the outbreaks of Trichinosis have been few as compared with the number on the Continent, and no doubt this is mainly due to the fact that we, as a nation, do not eat largely of raw or imperfectly cooked flesh.

Notwithstanding this, however, all acquainted with the malady subscribe to the opinion that not a few persons succumb to this affection, and the cause of death is ascribed to other diseases, more especially Enteric Fever and Rheumatism. "Virchow had not seen a case before 1859, after which he met with no less than six in one year." The disease is either on the increase or greater attention is being paid to the subject, as cases of Trichinosis are now being frequently recorded in the medical and veterinary journals. During the past year considerable anxiety has been expressed as to the prevalence of Trichina spiralis in American swine, and apparently not without good reason, for in the July number of the New York *Journal of Comparative Medicine and Surgery*, for 1883, Mr. F. S. Billings, veterinary surgeon of that city, is reported to have made an examination of the carcases of 8,773 hogs, and to have found one in every twenty-five to be infested with

trichinæ. In the month of September last, in the little town of Emersleben, a trichinous pig was slaughtered, and, according to the universal custom in Saxony, nearly the whole of the flesh was eaten in a raw state as mince-meat. Of the persons partaking of the flesh, 361 were seriously ill, and fifty-seven died of Trichiniasis. According to the State enactment, this carcase, like that of all other pigs, should have passed official examination, but it did not (*Practitioner*, February, 1884).

Regarding the vitality of the parasite, Colin states that in his experiments he found trichinæ which had been encysted in the muscles of an animal for four years, as lively as if they had only been a few days old.

From experiments also recorded, it appears that this parasite has the power to resist drying, putrefaction of the flesh, maceration, lowering of temperature almost to freezing, and elevating almost to boiling.

As previously stated, the symptoms of Trichiniasis in mankind simulate Enteric Fever and Rheumatism, and as these diseases are not uncommon in this country, and as American bacon is an article of almost daily diet in many households, may it not be that some of the cases recorded as Enteric Fever and Rheumatism are really Trichiniasis?

Be this as it may, it is evident that American and German pork—and for that part of it, pork from any country—is not a safe article of diet unless it is thoroughly roasted or boiled, and even when so cooked, if it be infested with trichinæ, it is unfit for human food, or for consumption by any animal.

Cysticercus Cellulosus.

The presence of this hydatid parasite gives rise to that disease in pigs generally called "Measles," but a more inappropriate term could not be conceived, as it bears no resemblance to the disease "Measles" in the human subject, there being neither red spots nor cutaneous eruptions on the body. This disease can be propagated from the human subject to the pig, or from the pig to the individual, with great facility.

The human body not infrequently, as is well known, is the habitat of tapeworms, and especially that form or class, "Tænia solium." These tapeworms in large numbers occupy the intestine, and the segments are regularly and almost daily voided in the fæces, and if pigs are allowed access to human excrement, as is well known, they will devour it; and where pigs are allowed to roam at large, as in Ireland, and consume all kinds of garbage, they can scarcely escape playing the host to this parasite. In this way the segments of the human tapeworm may gain the bowel of the pig. Within the alimentary canal the segments burst, and the embryos are liberated from the ovum. The free embryo "proscolex" now commences to migrate, and bore its way, by the aid of its three pairs of spikelets, through the tissues, piercing the walls of the intestines, then the tissues of solid organs and muscles. It also penetrates the walls of the blood-vessels, and in this way, also, may gain remote parts through the blood stream. Having reached its destination in the muscles or other organs, it assumes the hydatid or bladder form, and there remains permanently fixed, undergoing no higher form of development unless partaken of as food by another animal, and should that animal be man, it will, in his bowels, be developed into the mature and fully-developed Tænia solium. Leuckart is of opinion that the average period of existence of a tapeworm is two years, and that it grows not less than 1,600 segments (proglottides), each containing 53,000 eggs.

The so-called "Measles" of the pig is a disease not by any means exceptional; but I do not think that it is on the increase—pigs being brought up with greater care and cleanliness—still, salted specimens for sale in provision shops are not difficult to find even in towns where meat Inspectors hold office.

In the living pig a diagnosis in a great many instances at any stage of the affection cannot with authority be pronounced, and in the early stage of the disease it is impossible. A pig may be infested with cysticerci, and yet fat, and apparently in the best of health. A careful examination of the mucous membrane of the mouth, especially along the sides and frænum of the tongue, the inside of the eyelids and anus, may disclose the presence of the little cysts or bladders ; but if not, unless Kuhne's flesh harpoon and the microscope clear the way, we cannot detect a "measly" pig during life.

The muscles most frequently infested by the cysticerci are those of the tongue, neck, shoulders, loins, and thighs ; but any and all the muscles and organs of the body may be invaded. The flesh is paler than normal, and between its fibres the cysticerci can be seen and recognised by their white colour. "Their friability, crunching under the teeth, owing to the calcareous matter they contain. When this flesh is being roasted or fried it emits a crackling sound, due to the bursting of the cysts, and it gives the same gritty sensation between the teeth as when boiled." The flesh of a "measly" pig is clearly unfit for human food, and unless boiled or cooked to destruction of the flesh, it ought not to be given to a dog.

Rinderpest, or Cattle Plague.

This disease is neither communicable from cattle to the human subject, nor from the human subject to cattle. It is undoubtedly dependent upon a specific organism or microbe, and this specific organism has no existence in this country, or if it has, it is not possessed of sufficient vitality to propagate itself. Dr. Smart, of Edinburgh, in his little work recently published, and entitled, "Germs, Dust, and Disease," in the preface "takes opportunity of claiming priority in the discovery of micro-organisms in living tissues." His delineation (of which a drawing is given) of the "Rinderpest" germ was published in 1865, the next earliest being that of the "spirillum" of Relapsing Fever by Obermeier. In 1872 Klebs discovered micrococci in the lymphatic glands, and Semmer, 1874, also discovered micrococci in the blood and lymphatic glands. Semmer has cultivated the micrococci, and he alleges that the cultures modify the disease, but further experiments are required before the specific nature of the micrococci can be considered as determined. The microbe exists in, and apparently is indigenous to, the steppes of Russia ; but in this country it has no existence, and can only reach our shores by the importation of affected animals. The regulations under which cattle from foreign countries now enter these kingdoms are so stringent, that it is scarcely possible for Cattle Plague to be again introduced ; and even if it were, the machinery for its extinction is such that it would undoubtedly be stamped out at once. But the question still remains to be answered : Is the flesh of an animal affected with Cattle Plague fit for human food? From the *Veterinary Review* of 1865, page 557, I transcribe the following :—"It appears that in some instances Inspectors allow those animals which are only slightly affected to be sold for human food, while those in the more advanced stages of the disease are buried as speedily as possible. A correspondent of the *Glasgow Herald*, taking notice of this, *properly remarks* that every Inspector ought to know that before any symptoms or external indication of any disease can become apparent on an animal, the blood or some internal organ is more or less charged or assailed by some aerial or other impalpable or invisible poison, possibly animalculæ or other cryptical formation, inhaled or generated, *which must cause both the flesh and milk of the animal to be poisonous.*

"And we observe that Mons. Chauveau, Professor of Anatomy in the Imperial Veterinary College, Lyons, who is at present officially employed investigating the nature of the Cattle Plague in this country, expressed when

in Glasgow, his decided disapproval of making use of animals slightly affected with the disease as human food, adding that the French Government would not allow a single pound of meat to be sold for such a purpose."

The preceding is but a sample of the many strictures aimed at myself and other Inspectors who chose to act, not from sentiment, but from a sense of duty. When Cattle Plague, in 1865, appeared in Glasgow, the whole duties connected with the working of the Act, including the slaughter and disposal of the carcases of affected animals, were intrusted to me. A power involving the pecuniary interests and welfare of thousands, and the health of tens of thousands, could neither be exercised in an arbitrary or sentimental manner without doing incalculable harm and injustice to the country. A sanatorium was instantly erected, experiments of various kinds undertaken, and among others, to test the effect of feeding animals upon the flesh of cattle slaughtered or dying of the plague. Suffice to say that in not a single instance did illness follow the consumption of the flesh—dogs, pigs, and cats, living almost exclusively upon the flesh, increased in weight, and enjoyed perfect health. The flesh of cattle which had recently contracted the disease, and on that account had been slaughtered, was then partaken of by myself, assistants, and others, and with no bad effects. A limited number of the carcases of the animals slightly affected before being slaughtered were then handed to the butchers, and as neither complaints nor bad effects followed their distribution, the practice was extended and continued until Rinderpest was finally stamped out in this country. Thousands of carcases of plague-stricken cattle were consumed by the inhabitants of Glasgow and the West of Scotland. Flesh meat was within the reach of the poorest of the poor, the health of the community was good, no epidemic prevailed, and the mortality was less than usual.

Now, one sentence in regard to Professor Chauveau and the French Government. Shortly after the termination of the Franco-German War and the siege of Paris, I had occasion to visit that city on a professional tour. The subject of the siege, the privations to which the inhabitants had been subjected, the fearful mortality in cattle from Rinderpest, and kindred topics, engrossed the attention, and were the subjects of universal comment. One gentleman publicly stated in my hearing that he had been reduced by starvation to the condition that he could eat with relish almost anything except a grey-faced rat. In course of conversation I also learned that the cattle affected with Rinderpest were not slaughtered, but allowed to die on the Boulevards—the universal feeling being that it was certain death to partake of their flesh. Feeling sorry and vexed that so much valuable food should have been wasted at a time when it was of such value, I informed the company how the authorities of Glasgow had dealt with Cattle Plague carcases, and their reply was that, if a similar practice had been adopted in Paris during the siege, hundreds of persons would have been alive to-day that were in their graves.

In the early stage of Rinderpest, if the animal is bled to death, and the carcase properly dressed, the flesh is not only fit for human food, but it will defy an expert, by any method of investigation, to detect the slightest trace of diseased action. The blood and all the internal organs have always been confiscated by me, and not allowed to pass into consumption.

The recent "Medical Reports," Chinese Customs' Service, 1884, fully bear out the view as to the wholesomeness of the flesh. As the Chinese have not nice ideas of feeding, probably every case was eaten.

Foot-and-mouth Disease.

This disease is also dependent on a specific organism or microbe, and this microbe is contained in the vesicles which form on various parts of the

body, especially on the mucous membrane of the mouth and alimentary canal, and on the fine portions of the skin of the teats and digits.

The microbe is also contained in the salivary and other glandular secretions, and is communicable, by inoculation or ingestion, to man, but not by inhalation. In this it differs in its communicability to cattle, as the disease spreads in these principally by inhalation. Ingestion of the flesh has never, to my knowledge, produced the disease in the human subject; but it has been otherwise with the milk. I have given the milk of an affected cow, but on whose teats there were no vesicles, to young animals to drink, and have drank it myself without bad effects; and I have seen bad effects following the administration of the milk when there were vesicles on the teats, so that I incline to the opinion that the milk of a murrainous cow is innocuous unless contaminated by the microbes in the effusion contained in the eruptions somewhere on or within the teats. In disposing of the bodies of animals slaughtered while affected with this disease, my practice is to pass the carcase, and to condemn as unfit for human food the udder and feet, and the whole of the mucous tract extending from the mouth to the anus.

Dr. Vacher, Medical Officer of Health, Birkenhead, in a paper read at the annual meeting of the British Medical Association in Worcestershire, in 1882, on the Transmission of Disease by Food, and writing of Foot-and-mouth, and the transmission of the disease to the human subject by eating the flesh, says :—"I do not call to mind a case in which the appearance of the disease in a human subject has been traced to ingested meat, while many have been traced to milk. This cannot be owing to there being much scruple about using the flesh of affected animals as food, and the simple explanation seems to be, that while the flesh is usually well cooked, the milk is ingested raw. There is no reason to doubt that the specific contagion is contained in the vesicles which characterise the disease, and that this specific contagion, unless sterilised by heat or otherwise, is capable of conveying to man the disease of which it is the seed. In districts where it is the rule to pass carcases affected with this disease, it is quite usual for the meat Inspector to retain the head and feet, and any parts marked with the eruption—as the udder, and portions of the intestines. Then the whole of the skin is, of course, removed, and the surface of the carcase, to which some have thought there is a determination of the mature contagion, is the very part which, either in boiling or roasting, would be subjected to the highest temperature. Milk, on the contrary, is directly contaminated. Large vesicles form on the udder, and even on the teats, which it is scarcely possible to avoid rupturing in the process of milking, and the contents are discharged into the milk-pail. The mixture of milk and virus is imbibed raw, and within a few hours of its being drawn. If it were the custom to eat meat nearly raw, and usual to eat the head and feet of animals affected with this epizootic, doubtless there would be instances of the disease being communicated by meat as well as milk."

(To be continued.)

Army Veterinary Department.

Gazette, November 25th, 1884.

Veterinary Surgeon on Probation Frank Joslen, to be Veterinary Surgeon, dated 9th May, 1884.

Gazette, December 2nd.

Veterinary Surgeon, First Class, Mr. Burt, to have the local rank of Inspecting Veterinary Surgeon whilst employed as Senior Veterinary Surgeon with the Force on the Nile.

Gazette, December 9th.

The following gentlemen to be Veterinary Surgeons on probation :—Patrick William Dundon, George Curran Orr Fowler, John Alfred Meredith.

We omitted to mention, when enumerating the Veterinary Officers accompanying the Expedition to Khartoum, in last month's JOURNAL, the name of C. Phillips.

Obituary.

We regret to have to report the death of William Stephenson, M.R.C.V.S., of Pickering, Yorkshire, who died on October 24th. He graduated in 1849.

The death is announced, at the age of sixty-two years, of Dr. Augustus Voelcker, F.R.S., Consulting Chemist to the Royal Agricultural Society, and one of the most distinguished agricultural chemists in this, or perhaps any other, country. For many years he was a member of the Examining Board, in London, of the Royal College of Veterinary Surgeons, and won most favourable opinions for his tact and judgment.

Professor Dr. Papio, of the Madrid Military Veterinary School, died recently, from the injuries received in a railway accident.

Notes and News.

MEDICINE IN ENGLAND IN THE SIXTEENTH CENTURY.—The position of human medicine was not very exalted at this time, if we may accept as evidence the description the preamble to an Act of Henry VIII. gives us of the condition of the medical profession in those days. "Forasmuch," the recital runs, "as the science and cunning of physic and surgery (to the perfect knowledge whereof be requisite both great learning and ripe experience) is daily within this realm exercised by a great multitude of ignorant persons, of whom the greater part have no insight in the same, nor in any other kind of learning; some also can no letters on the book so far forth that common artificers, as smiths, weavers, and women, boldly and accustomably take upon themselves great cures and things of great difficulty, in which they partly use sorcery and witchcraft, partly apply such medicine unto the disease as be very noious and nothing metely therefor, to the high displeasure of God, great infamy to the faculty, and the grievous hurt, damage, and destruction of many of the king's hege people, most especially of them that cannot discern the uncunning from cunning." The comprehensive remedy provided for this state of things, was that no one should practise as physician or surgeon in London, unless he had been examined by the Bishop of London or Dean of St. Paul's, or, outside London, by the Bishop, or Vicar-General of his diocese.

VETERINARY SCIENCE IN EAST AFRICA.—Amongst the Bedouins or Somals, firing and clarified butter are the farrier's panaceas. Camels are cured by sheep's head broth, asses by chopping one ear, mules by cutting off the tail, and horses by ghee or a drench of melted fat."—*Burton*, "*First Footsteps in East Africa*," p. 182.

METHOD OF PRESERVING ANATOMICAL PREPARATIONS AND WHOLE BODIES.—Dr. Hotz states, in a recent number of the *Chicago Medical Journal*, that Dr. Wickersheimer, prosector in the Anatomical Institute at the University of Berlin, has invented a new preserving fluid, by means of which it is possible to preserve any organic bodies, either plants or animals, so perfectly that they retain their original form, colour, and texture. The inventor at first secured a patent for his invention, but in the interest of science he relinquished it. The fluid in question is thus prepared: 100

grains of alum, 25 gains of cooking salt, 12 grains of saltpetre, 60 grains of potash, and 10 grains of arsenious acid, are dissolved in 3000 parts of boiling water. The solution is cooled and filtered. To every 10 litres of this neutral, colourless, and odourless fluid there are added 4 litres of glycerine and 1 litre of methyl-alcohol. For dry preservation the preparations are immersed in the fluid from six to twelve days, according to their size, and then dried in the air. Organs like the lungs and intestines are filled with the fluid before immersion, and blown up before drying. Small animals and portions of bodies which are to be preserved in their natural colours are simply kept immersed in the fluid. For embalming, the body is injected and laid in the fluid for several days. It is then taken out, rubbed off, and dried and wrapped in linen or oil-cloth saturated with the fluid, and encased in air-tight receptacles. If bodies are to be temporarily embalmed for scientific purposes, the injection of $1\frac{1}{2}$ litres (for children) to 5 litres (for adults) is sufficient. Even after years the cut surface of the muscles shows the appearance of those of a fresh corpse. Bodies treated in this way have not the least odour.

THE RABBIT PLAGUE OF AUSTRALIA.—Consul-General Spencer, of Melbourne, referring to the multiplication of rabbits in the Colonies, which has become a veritable plague, states that from a single pair introduced for the amusement of sportsmen there are now millions. In some instances, squatters have been compelled to relinquish their sheep runs, and to abandon their holdings. The advance of the rabbit is as noiseless and persistent as that of the dreaded phylloxera. Crossing rivers and mountain ranges, they are steadily penetrating into the interior, and it is to be feared that before long they will probably be found in every part of the Colonies, occasioning heavy losses to the agriculturist and grazier, and involving expenditure for their partial suppression that will amount to millions sterling. To exterminate the pest, all the known appliances of modern science have been brought to bear, with the result, in some localities, of only checking its steady advance. Traps, poison, fire-arms, deadly gases, the dog, the dingo, and the mongoose have been brought into requisition, but hitherto with only partial or indifferent success. Government aid has been invoked, and the Parliaments of Victoria, South Australia, and New South Wales have already voted nearly £210,000 for the extirpation of the plague, and in all probability will have to expend many thousands more, even to keep it within moderate bounds. When to this sum is added the expenditure of private individuals in the colonies named, as well as Tasmania and New Zealand, it will be seen that the outlay, both past and prospective, is enormous. According to the report of the Chief Inspector of Stock in New South Wales, no less than 700,000 acres in that colony are infested with rabbits. On 27 sheep runs they are said to be increasing; and decreasing on 36 stations and 44 sheep runs. About 115 men, under the supervision of inspectors, have latterly been employed in trapping and poisoning, and they are stated to have destroyed immense numbers. Of the various means employed in exterminating the rabbits, the most efficient are trapping and poisoning, phosphorised oats and sulphide of carbon having been found especially effective. Latterly, some specimens of the mongoose have been imported from Colombo, and after being kept in confinement for some time, were turned out on some large estates in those districts in Victoria and New South Wales where the rabbits are most numerous, and it is stated that the result of the experiment has been most favourable. Consul Spencer says that one result of this plague of rabbits has been to open up new channels of trade, and develop new industries. From Victoria alone, during the year 1882, 4,929,432 rabbit skins were exported; and from New Zealand, 9,198,837, of the aggregate value of £132,000.

Correspondence.

THE ROYAL COLLEGE OF VETERINARY SURGEONS AND ITS EXAMINING BOARD.

SIR,—I observe, with much regret, the attacks made upon our Corporation and its Examining Board in the introductory addresses recently delivered at the Glasgow and the Edinburgh New Veterinary Colleges ; and as I have been solicited, owing to my position as Chairman of the Board, and lately as President of the Royal College for four consecutive years, embracing a most important period of its history, to notice these attacks, I venture to do so as briefly as possible. And here let me express my entire concurrence with those who think that such attacks as these should not be made in a students' class-room, entirely unsuited, as they are, to such an audience, and eminently pernicious, as they must be, in their effect upon young men who aspire to become members of the Royal College. At the best the statements made before them are *ex parte;* there is no one present to correct or refute them, and the students, for lack of better knowledge, will probably accept them as truthful. When such statements are made with the view to prejudice students' minds against the Royal College and the Examining Board, and to show that these are unreasonable and unjust, it must be confessed that a sure foundation is laid for future trouble. In so poisoning the students' minds, the teachers who thus act are sowing the wind, for the profession hereafter to reap the whirlwind. From every point of view the introduction of such pernicious stuff, which can do no possible good, is to be regretted and reprobated. In the Edinburgh school the speaker is the lecturer on a very minor subject—chemistry, who could have no knowledge of the political portion of his address, that is, the object and aims of the Royal College, and the final examination for the diploma ; in fact, he must have been made a mere cat's-paw of, and provided with information derived from a very unreliable source. Students should know that the Royal College of Veterinary Surgeons and the examiners are their best friends ; that they are endeavouring to prevent them being thrown on the world to practise a profession with only a very imperfect amount of professional knowledge, and to see that justice is done to them in this respect. Nothing can be more cruel to students, damaging to the profession, or injurious to the public, than to launch incompetent men on a sea where shipwreck is certain to speedily befal them. In all that the Royal College has done, especially during the four years of my office as President, it has been actuated by an honest and earnest desire to benefit students, the profession, and the public, by raising the standard of education—general and professional—hitherto miserably low and incomplete, and it has not attempted to do this by any extraordinary or revolutionary methods. In no country in Europe, not even in the poorest State, has veterinary medicine been so degraded through lack of attention to its general and educational requirements, as in our own. We are almost daily reminded of this fact, and have to blush in acknowledging it. The very reason for the existence of the Royal College is to be found in the direction of improvement ; and it is deeply to be deplored, that whenever this is attempted strenuous opposition should be offered by those who ought to be the first to assist. The unfortunate position of the teaching schools, in their having to maintain their existence under difficult circumstances, must be admitted, but that can be no reason why the entire body of the profession, and still more the great public interests which are at stake, should be sacrificed that these schools may live after a certain fashion. The Royal College is spoken of in the lectures referred to, as if it were the implacable enemy of the schools and the students. This is wrong. Its

existence depends solely upon the number of students admitted into the profession, and in this way it has as great an interest in the increase of these admissions as the schools have in securing full benches. But it takes a much higher view of its duties than to be influenced by mere pecuniary considerations. It is not only the guardian and representative of the entire profession and the protector of the student, but it is also responsible to the public that none but those who are qualified to practise Veterinary Medicine and Surgery shall receive its Diploma. To allow the names of men who are not sufficiently skilled to appear on its register, would constitute a grave blunder—indeed, a fraud upon the public. Seeing that veterinary education is so notoriously defective, through the absence of facilities for imparting it at the schools, the Royal College was in duty bound to repair that deficiency in the only way in which it could be remedied; and in order to do this, it sought power in a Charter. The obtainment of this Charter was opposed by three influential Corporations in Scotland, instigated, it is presumed, by the Principals of the three Scotch schools, and the result was adverse to the Royal College. Those who were present at the last annual meeting will, perhaps, remember, that two of these Principals denied this, but the third had not the temerity to do so. Proof of it, however, is afforded in the Glasgow Introductory Lecture, in which the Principal exults in having, with his two colleagues, defeated the Royal College through the instrumentality of the Scotch Corporations. To any one who knows the real state of affairs with regard to practical knowledge, such exultation must appear strange; nothing can be more patent than that the students are very imperfectly trained in the practical and most essential details of their profession. No matter how the teachers may strive, they have not the means or opportunities for imparting it, and it can only be obtained either at the expense of the public and professional reputation after the student has graduated, or by serving a period of pupilage away from college. Apprenticeship was the rule in the medical profession before the medical schools were annexed to the hospitals and infirmaries; but the splendid opportunities which these latter now afford for the practical training of medical students obviates the necessity for apprenticeship. Our schools have no such facilities, and yet our profession is more difficult to practise, so far as manual dexterity and skill are concerned, than that of human medicine and surgery. The veterinary schools admit youths fresh from school, or who have failed in other undertakings very different to veterinary surgery, some of them, it is to be feared, without even a decent knowledge of the three R's, lecture to them, show them as much as they can, and then send them up for examination. What can be expected?

And now as to the examiners. Abuse and obloquy have been plentifully showered upon them by those teachers who have been annoyed at the rejection of students who were incompetent to pass their examinations, and especially in the final, at which the number of rejections, as might be expected from the absence of practical knowledge, have been heavy. Among the bitter things said of them, is the story told by a Principal, that the examiners reject students in order that they may obtain fees by examining them again. Such an untruthful statement needs only to be mentioned to be dismissed with scorn. Another is that they have "fads." Well, I suppose most men have "fads," and if the examiners have their share, so have at least some of the Principals, the chief of whose "fads" I need not allude to. It only needs two or more Principals to appear on opposite sides in a Court of law to find out how hopelessly they differ on matters of fact and in opinion, and how numerous and marked are their "fads." This only proves that they are mortal, like other men. Then it has been said that the examiners are prejudiced against the students, that their method of examining is unfair, or

too severe, that they are incompetent, or that they expect too much. None of these accusations will bear examination. I exclude myself entirely from consideration in the discussion of this point, though I am now the senior member of the Examining Board, and have examined on at least four subjects. I may say that, however, during the many years in which I have acted, my sympathies have been largely, if not altogether, with the students, and I cannot reproach myself with having acted unfairly or unreasonably towards them. As chairman of the Examining Board, I would desire to bear testimony to the zeal and conscientious care with which they endeavour to discharge their difficult and ungrateful task. Their abilities no one can justly call in question, and I am confident, by what I see and hear, that no student is rejected without due and anxious consideration of his merits or demerits. If there is anything for which they might be blamed, it will be on the score of leniency. Many of the examiners have been teachers, some of them have shown their enthusiasm by studying in the schools of Germany and France, and two of them have had the great advantage of acquiring knowledge of practical histology and experimental pathology, while others are most successful and accomplished practitioners. I do not believe that a single student who is competent to pass is ever rejected, and the examinations, so far from being severe, are, in my opinion, far too elementary and easy ; indeed, the present requirements of the Royal College of Veterinary Surgeons are much below what they should be, in order to insure that holders of the diploma will be what that document represents them. The examiners must perform their threefold duty faithfully and scrupulously, for on them, and through them on the Royal College, will rest the blame of admitting unskilful men to the ranks of the profession ; and those teachers who now so loudly and strongly cast reflections on the Royal College, would be first and foremost in repudiating responsibility for incompetency. As evidence of the quality of many of the students who come up for the final examination, I may mention what happened in my own experience in Edinburgh last July. One of the practical examiners having been suddenly called away, I was asked to officiate for a day in his stead (I am not onthe so-called "practical" examination). The exhibition made by the majority of the students in their examination of horses was not only painful—it was shocking. One student examined a horse having a most conspicuous cataract, visible a yard or two off—in fact, the whole lens was opaque ; he did not detect this ; indeed, he forgot to inspect the eyes, and when asked to examine them he took the horse into a cattle-shed, pushed its head into the darkest corner, and putting his hat between it and the wall, imagined he was scrutinising the eye on that side. It is needless to say he did not discover the cataract. The next student likewise failed to detect the cataract, and when at last it was pointed out to him, he said it was opacity of the cornea. Other students could not say on which limb a horse was lame ; could not describe how to perform simple surgical operations ; and their knowledge of regional anatomy and exterior of the horse was often of the most limited kind, or *nil*. I leave Professor Macadam to discover the school these students came from, but if he had seen or known of such an exhibition as I was compelled to witness, I fancy he would not have committed himself to the sentiments he favoured his students with on second-hand authority. The other examiners informed me that what I had seen was by no means rare. And as proof that the examinations, so far from being severe or unfair, are much too easy, I may refer to the excessively heavy proportion of rejections that takes place among the candidates for admission to the Army (more than fifty per cent.)—these candidates holding the diploma of the Royal College, and generally failing through want of knowledge of simple practical details.

With regard to the number of examiners being limited, this was done from motives of economy ; and with respect to the examination fees, no one who knows what the work and responsibility are will think they are too high. On one occasion, an examiner travelled from London to Edinburgh and back in mid-winter, to attend one day's examination—three days, with hotel expenses, for three guineas.

But I need not dwell further on this subject. The Royal College of Veterinary Surgeons is the veterinary profession ; and this does not exist for the schools, but the schools for it. It is bound by every means in its power, and by the sternest obligations, to not only do its duty to itself, but also to the public, by improving and testing veterinary education. Its being depends upon this ; and if in the past it has been remiss in allowing men to enter its ranks who have not met public requirements satisfactorily, and has thus been the means of allowing unqualified men to obtain a powerful footing in the country, it is high time all this was changed, since greater responsibilities have recently devolved upon it. That those who now attack the College and the examiners are not the students' friends, as they pretend to be, is shown by a motion now before the Royal College to turn adrift those students who have failed in their practical examination, to find their education where and how they may. This is cruel, unjust, and impolitic, and I earnestly hope the Council will reject it. Every means is being adopted to render admission into the profession more easy, allowing those to pass in by instalments who cannot enter in the ordinary way. The profession can never rise, but must go down, if these schemes succeed.

It will be observed that in both introductory lectures, the profession is again threatened with a Charter for Scotland if it will not mend its ways and grant its diploma to these students whom the examiners pronounce to be incompetent to practise—that is really what it amounts to. This threat—which was really an impertinence on the part of the lecturer in Edinburgh, seeing that he does not belong to the profession, and knows nothing of its requirements or its examinations, except from very questionable hearsay—this threat has often been made, and I trust that the profession will not be alarmed by it. When the application for the Charter is made, the Royal College has only to explain to the Government why it is sought (giving the ample evidence it possesses in support), and we may be sure the request will not be complied with. No Government dare grant a Charter which would prove so damaging to the public interests ; indeed, I very much question whether the three Scotch Corporations which recently opposed the Royal College, would venture to prostitute their influence in the matter if they knew the truth. It is for the Royal College and its examiners to stand firm, and do their duty fairly and honestly to the public, and we need have no fear of a Scotch Charter ever being granted. The interests of the public are at stake, and these are not to be mentioned in the same breath with the pecuniary interests of the Scotch schools. At any rate, if the Royal College is to fall by means of these schools and the misled Corporations they bring to their aid, it is better that it should do so honestly endeavouring to perform its functions, than to exist merely for the purpose of pitch-forking uneducated men upon the public as M.R.C.V.S. But it must be remembered that to obtain this Charter, the House of Commons must be consulted and give its sanction, and this constitutes the safety of the Royal College. Times have changed the position.

With regard to Scotland being represented on the examining board, that is a matter for the Council to decide. The Scotch schools are represented on the Council by each of their Principals, and the Council-room is the place where they should lay their complaints and suggestions for discussion—not the class rooms, where their one-sided statements can do nothing but harm. So desirous have I been that Scotland and Ireland should be represented on

the examining board, that for more than a year I have spoken of it, and last July I asked Professor McCall to bring forward the motion which he has recently done, to increase the number by four for the final examination. It was my intention, had I then been present, at the last Council meeting, to have nominated two members in Scotland and two in Ireland. As it is, I observe that Scotland only gets one, and Ireland none; so that these Principals display less zeal for Scotland and Ireland in the Council-room than they do in their class-rooms. GEORGE FLEMING.

December 15th.

THE STUDENT'S CAUSE.

DEAR SIR,—With your kind permission for a few lines' space in the next number of THE VETERINARY JOURNAL, I should like to enter on the new year with a greeting of good wishes to our profession, and to point out some inconsistencies in affairs which, unchallenged, can have no other than most damaging influence. Especially is my greeting directed in the welfare of present and future students aspiring to join our ranks, and to become *properly* qualified veterinary surgeons; and, therefore, the food for reflection now offered, together with advice for its digestion, will be confined to the burning questions of education, training, and examination.

The Council, being responsible for the direction of these matters, may first claim attention. That its purpose, in the way of education, has been paved with good intentions must be recognised by all who have followed its proceedings for some time past; but it has been made to appear infirm of purpose, and to be needlessly wasting time in making and unmaking rules for its action, because obstructionists have now been ready to oppose all measures tending to advance the educational standard, and to place our students on a footing with all surrounding progress; and thus have we made our profession the very laggard it is. Is not the Council chargeable with inconsistency, even at the very outset of the student's career, with respect to the educational examination? For who can read without a blush the limit of knowledge required, and deemed sufficient, for a young gentleman proposing to grapple with an art of which we write *post medicinam secunda est.*

It is unfair to a youth of defective education thus to accept him, only to be doomed later on to the disappointment of a false position; and fairer would it be to parents that opportunity were given to choose for such some more fitting sphere of usefulness.

The minds of students, as I consider, have been sadly abused of late; and one has but to read the recent opening addresses at some of the colleges as reported in your JOURNAL, as a further confirmation.

The lamentable incompetence of so large a number of the students is sought to be saddled on the wrong horse.

The Council is condemned, as it always has been, when its rightly intended efforts have been in the direction of rendering the education and qualifying of candidates more than a pretence and a sham; and our present examiners have done good and laudable service to the profession and to the public, in respecting the diploma which represents the holder of it as being "fully qualified to practise the art and science of veterinary medicine and surgery."

The examiners must indeed have been *too severe* when again fifty per cent. of those who have been allowed to pass have been rejected at the army veterinary examinations; and let us hope, for our own credit, the profession to a man will stand by them and support them in so well doing their duty. The examiners must indeed have been perplexed in the extreme, for the record of the late pass examinations show a significant preponderance of the lowest award to save rejection.

Lack of education has always been the great drag-chain on the veterinary profession, and as advance in this particular has ever clashed with the interests of the schools, opposition has been but too successful.

It must not be forgotten that the colleges are not, in a sense, public institutions, and they are not under Government or other supervision, but are, for the most part, proprietary ventures, and the interest, therefore, must tend greatly in one direction.

The gentlemen engaged in them in the business of teaching do, beyond question, to the utmost in their power, strive to educate their students to the full extent of limited opportunities, and they have our sympathy in their self-imposed task.

It is but human nature, and in fair trading, to desire quickly to turn one's capital, and whether the profit be derivable from students, or horses, or fabrics, or any other thing, there must be the same dominant spirit to renew the stock. No wonder, then, that the interest of the profession and the interest of the public, and the interest of the schools, are not necessarily identical.

The rejections have brought to light two admissions—the one in the complaint of the students that they are insufficiently taught in practice, and have not the opportunities afforded them in the schools for acquiring practical knowledge; the other admission is by the schools themselves, that there is not the opportunity in time or material to afford the pupils the requisite degree of practical instruction.

The Council has very rightly instituted a practical examination, as well as an oral examination, and has as wisely ordered that these must be passed *together* to qualify for the diploma; but the former examination being the one in which candidates are found so unprepared, a way out of the difficulty is about to be urged on the Council, which, if acted on, would undoubtedly relieve the schools of a large share of their responsibility and liability, but which would be disastrously damaging to the interests of the students.

The proposal coming from the schools is to separate the practical examination from the final oral examination; to transpose their present order, and to allow the candidate to be *first* examined in the "oral." If he pass this, it is to be considered as done with, and if he afterwards fail in the "practical," the student is to be released from any further attendance at his college, and is to obtain, where he can and how he can, instruction in practical matters under the tuition of a practitioner. In other words, at the end of his college life he is to make terms *as a pupil*, if possible, with a veterinary surgeon, to qualify, for further trial for the diploma, and failing in this arrangement what alternative is there but to find himself on beam-end, foundered, with no other course but to relinquish his aspiration and further connection with the profession. I fear it would cast shoals of young men on their own resources; for many a practitioner who would accept a promising youth of seventeen as an apprentice, and try to make a man of him, may hesitate to undertake the responsibility and trouble with the older pupil, whose credentials will scarcely avail for the few vacancies for a "practical young man as an assistant," and thinks the student's interests will be safer in our Council's hands than his.

The hardship on parents in the rejection of unprepared students has been pathetically dwelt on, and when "hope deferred maketh the heart sick," who can withhold sincere sympathy? I will, therefore, ask you to allow me to close with a greeting also to parents, for whose guidance I will venture to point out that the veterinary profession is *not by any means an inexpensive one* to bring a lad up to, either in the requisite training for it, or in its after practice, and it requires to start with the possession of a good education, and a natural taste for animals, their habits and surroundings. If a parent

in the first instance will but place his young son on probation for a few months with a good veterinary surgeon, and act on his advice as to whether or no there is the *right material* to send to college, there will be less disappointment in the future. "LIBRA."

PRACTICAL TRAINING.

SIR,—I have no objection to Mr. Greaves, or any other gentleman, for his own special delectation, or the amusement of his friends, erecting a ghoul, in the form of imaginary defective practical instruction of our veterinary students, and dancing around his phantom in true Ojibeway fashion. I think, however, that those who are made use of for the manufacture of this ogre have a right to demand that any statements which are made shall be strictly true, both in a general way and in minute particulars.

Before Mr. Greaves made the statements contained in his article in this month's Journal, he ought, amongst other matters, to have ascertained whether it is strictly true that the teachers of veterinary medicine regard with such disfavour as he states, the employment in professional work of young men intending to enter College and the profession.

Camden Town, *December 13th.* WM. ROBERTSON.

DEAR SIR,—Tired as we may be of the word "Practical," it is for us to face facts as they stand.

The men turned out by our colleges at the *present* day are *undoubtedly* inferior to those of former times; the reason being that students then never thought of going to St. Pancras School unless they possessed some practical knowledge; *now*, they think that the mere acquiring of the College information is enough to make them veterinary surgeons.

I maintain, and that strongly, that the *all-important* practical knowledge *cannot* be obtained at our schools, but must be had at the establishment of a respectable veterinary practitioner, and in the country, *i.e.*, rural districts, if possible, as matters are there practised, which cannot be taught in town—to wit, castration, parturition, agricultural details, etc., etc., etc.

We have seen men possessed of the highest theoretical qualifications, make themselves completely ridiculous in the farmyard, horse-dealers' stables, repositories, etc., merely through being unacquainted with the most simple and elementary veterinary matters, details which they should have learnt in boyhood.

Practical knowledge must *come first, during boyhood;* and *then* theoretical affairs; theory can be imparted in after years, but *practice cannot.*

Some say that it is not necessary that a V.S. should be well educated; in fact, they go further, and state that education unfits them for their work. Now I boldly maintain that such is not the case; for instance, our military and naval officers—many of whom I know well—are gentlemen in every sense of the word, and yet thorough *horsemen*, and capable of any amount of manual work, if needs be.

Professor Robertson does his very utmost to impart practical knowledge at the London school; but he—as a practical man—could, I dare say, tell us that a student can only acquire that information and tact by individually coming in contact with the patient and client, and himself performing the ordinary operations, etc., which go to make up the daily routine of a town and country V.S.

Those men who by nature are not fitted for the veterinary world, will much easier discover this matter during an apprenticeship than while within the walls of the R.V.C.

As "A Reformer" says, "No amount of lectures will make a successful

operator, unless the pupil is allowed to do the work *with his own hands*, under the supervision of experienced teachers."

Personally, I have no interests at stake, simply the welfare of my chosen profession; and I firmly state that I am positive we cannot have "thoroughly qualified veterinary surgeons" unless we make it compulsory that a man shall present his indentures of apprenticeship *prior* to becoming a student at our schools; and, further, that the final and practical examination shall be more searching and thorough.

Some may remark that when the apprenticeship matter is carried—as I am thoroughly convinced it will be—that the expense will be great.

Then it would be well to alter the present existing College regulations, lessening the length of time to be spent at Camden Town, etc.—anything rather than turn men out into the world with their diplomas as being "duly qualified, etc.," who are, in reality, unacquainted with the rudiments of their profession.

"BLINK BONNY."

PRACTICAL KNOWLEDGE.

DEAR SIR,—The picture you have drawn in the November "editorial," of the student who lacks practical knowledge, is by no means overdrawn. There is no doubt that while we hope to impart practical details *at our schools*, the fact will remain, that the possession of a diploma is not a guarantee of a man's fitness to practise his profession. There are a large number of veterinary students, now-a-days, who *never* will make successful veterinary surgeons, simply because they are not adapted for the work; it would be much better for themselves, the public, and the profession, if they were employed in some more suitable calling, such as commercial engagements, civil service appointments, etc., etc. A celebrated steeple-chase man once said, "A man must be born a veterinary surgeon; it is impossible to make one." What can be more ridiculous than the following:—"A farmer desired a lately-fledged V.S. to castrate a colt; the 'duly qualified' made such strange efforts to catch the animal prior to castration, that the farmmen, etc., openly laughed at him, and the M.R.C.V.S. being too much afraid of the colt to effect a 'throw,' the undertaking was given up."—Faithfully yours,

"PRACTICAL WORK."

THE VALUE OF SUBJECTS TAUGHT TO THE VETERINARY STUDENT.

SIR,—While asking the favour of space in your next issue, I must disclaim any desire to enter on the public discussion of matters which, though demanding the consideration of all interested in the progress of the profession, appear to be the special province of those of more extended acquaintance with its constitution, and proffer as my apology the belief that some of the statements of the article in question are erroneous, or at least that its general tenor is likely to mislead.

From the following remarks, it will not be inferred that I wish especially to impute to Mr. Thomas Greaves other than high-souled motives for the elevation of professional status, or to question his right to dilate in large type in our representative publications on the intellectual, educational, or moral condition of the veterinary student; but in order that substantial benefit may accrue to the discussion of any topic, I think it is essential that our premises be correct, our assertions facts, and implications verities. It must also be admitted that when abstract subjects as intellect, education, or morality are being examined, the maximum of beneficial influence will be brought to bear by those who have made greatest advance in either or all. For we must allow that practice is a manifestation of the truth of a theory, whether this

be in medicine or ethics. There, however, seems in certain quarters some little doubt about what practice really is; but we will leave the doubtful, and proceed to what cannot be disputed.

There will be no division of opinion about the assertion, that practice is the only useful outcome of an exposition of abstract principles. The manner in which the student of veterinary medicine may gain the largest amount of these principles, and the faculty of applying them, appears to be a point of divergence amongst us, to which I will not now farther refer; but to the fact that the natural inference from Mr. Greaves' paper is that the schools are entirely incapable of imparting this special pitch of knowledge, for which apprenticeship to a veterinary surgeon prior to the student's entry on his scientific education is all-essential. That pupilage in some cases tends towards this end, I am not open to deny, but that the advantage gained is equivalent is, so far, debatable ground.

The writer, at the threshold of his remarks, assumes what I believe to be false premises, when he states "that the unanimous reply of several professors whom he had consulted on the subject has been that he (the pupil) is always a conceited man." "The knowledge that has been so carefully, so diligently, so sacredly implanted in his mind, is worse, much worse than useless." "That it always makes him the worst of students." I do not think such expressions are compatible with reason, and I am sure not with the sentiments of teachers who have spoken with me on the subject, who, Mr. Greaves might remember, are too careful to commit themselves by uttering such sweeping, senseless assertions.

Then the writer states that "The knowledge gained during a period of pupilage is quite sufficient to render the study of *pathology* of secondary importance, since he has seen practice before entering college, and he could bestow the whole of his time and his mind to the study of other subjects, and thus learn them more thoroughly, while another student (who had served no apprenticeship) although equally diligent, has had to devote much of his time and attention to obtaining some idea of pathology as taught at the college, which, by-the-bye, is a very different thing to that adopted in general practice, in which hereafter he has to get his living." From this it is evident that the author recognizes more than one pathology—at least two, the one useful, the other useless. I am quite sure, notwithstanding Mr. Greaves' vast experience and varied peregrinations, that it will be a hopeless task for him to try to convince the teaching staff, or the conscientious body of the profession, that this should be the basis for work of honest men. However, the terms science or scientific (in plain English, ascertained truth) may be subjected to disparagement, it will not be admitted, in spite of the practical exponent, that practice should be based on other than scientific principles, or that the practical man, or the so-called theorist earning his livelihood by practising on any other basis, is but an impostor, or that he will escape his deserts, unless he possess a considerable amount of "tact," "cant," "trickery," or by what name the cloak over his ignorance may be called.

While individuals are variously constituted, there will be diversity of opinion about details of practice; but when a man can give for adopting his method a reason which is in accordance with scientific principles, who can dispute his right? In the practice of an art which is not exact, principles can be our only guide.

Mr. Greaves must know that men may differ as to whether a horse is lame or not, or even as to the cause of lameness; and in treatment of cases details may be as various as are means at our disposal. He will certainly know that one practitioner may deem some such treatment as blistering, firing, or plantar neurotomy, correct in cases of exostoses around the pastern or coronet, while the empiric, as well as the eminent qualified practitioner, upholds that

of removing the insensitive and exposing the sensitive sole by the somewhat severe operation of "drawing the sole," which I believe has been mentioned as fit for the consideration of the R.S.P.C.A.

But to return to the main object of this communication, from which I find it is hard not to wander. I beg to offer to the notice of Mr. Greaves the following facts, which may afford him some more substantial basis for the further ventilation of his hobby, if that be deemed necessary. To show that the country will soon be supplied with veterinary surgeons of undoubted *practical* ability, and that there will possibly, in accordance with the law of the "survival of the fittest," be no necessity for inserting the pupilage clause into our charter, nor of securing such protracted examinations as would appear from his remarks to be essential, I beg to inform him that of the last 150 students entering this college, ninety had previously been with a veterinary surgeon, while others had gone after passing the first or second examination of the R.C.V.S.; that of the last fifty who failed to satisfy the examiners for the diploma, more than four-fifths had been apprenticed to veterinary surgeons.

Then as to the assertion, "In fact (the student) may never have seen a sick or lame horse in his life, only the few cases he may happen to have seen at college." *Happen*, forsooth!

Three academical years is the length of the curriculum of the college, and Mr. Greaves may note the following, which are facts:—

During the past three years—1882, 1883, 1884—there have been within the walls of this college 3,268 horses examined as to soundness; 4,129 horses examined as to lameness or disease manifested in other ways; 2,387 horses in the infirmary as in-patients (this is exclusive of dogs and other animals, of which there have been large numbers); and in addition to the foregoing, over 6,000 animals of various species have been examined at the gratuitous practice of the college (within its walls). One-tenth of this number were subjected to surgical operation; over one half were lame. To the whole practice every student had unrestricted access. No examination for disease or soundness takes place without the students at hand being able to observe the method and to hear the result, some of their number being discriminately or indiscriminately questioned respecting lameness, defect, symmetry, adaptability for work, etc. The student's answers are made before his fellows, than which exercise I know of nothing so likely to put a man on his mettle, to induce him to use his best judgment, to keep a sharp look-out at all times, and to gain for him what can only be gained by practice.

I believe that all examinations are made in full view of the fact that the supreme object of this establishment is the bringing to the notice of students those things which will not only enable them to earn their living easily, but to do so with the greatest amount of benefit to patient and client.

In his infirmary rounds, which occupy more than an hour daily, each teacher is almost invariably accompanied by groups of students, who go round as systematically as they attend lectures where the roll is called; the interchange of questions and answers on points in connection with the several cases, must be of practical value. These are matters liable to be overlooked, and are in addition to the regular clinical teaching which is carried out in divisions of every class, and these meet regularly in the loose box, stall, kennel, or casting shed.

All the medicines for the fore-mentioned twelve thousand horses have been dispensed and administered by students, who have also performed, with their own hands, all the surgical operations (some hundreds yearly) at the gratuitous practice. These include some of the more delicate, and I can assert that it is a rare occurrence for a student to obtain his diploma without having performed plantar neurotomy, while fortunate individuals have done so several times. Even that operation of castration which Mr. Greaves specifies by saying a student may never have seen, I must say the only

reason will be that he has not looked for it; for no student need leave this place without seeing it performed comparatively often, while many have a chance of doing it themselves. Then as to manipulation of the foot, I may say that for some years at least no student has been admitted to his preliminary examination until he has removed and affixed with his own hands four shoes, for which he has himself pointed the nails.

I do not wish to hold this school aloft as the perfect model of practical teaching, but I mention the foregoing in the hope that these matters may be news to Mr. Greaves, and that he will not consider that he has just grounds for referring to the practice at the disposal of the student as "but the few cases he may *happen* to have seen whilst at college;" and if any misconception or misconstruction be corrected, the object of this communication is attained.

That the inculcation of business habits, professional etiquette, and acquaintance with animals in health are matters of the utmost importance to the young veterinary surgeon is allowed by all; that these benefits accrue to the subjects of pupilage is questionable. The fruit of apprenticeship, like other fruits, depends on the soil as well as the seed, cultivation, and climate; all are liable to variation, for which allowance must be made in calculation. The good man, other conditions being favourable, will be benefited by pupilage; he would, in fact, improve in all situations, and if he had not the advantage of apprenticeship would have made some extra compensatory efforts. Whether apprenticeship is economical for the individual and the profession is not to be discussed here. Certain it is, apprenticed or not, it will be impossible for any student, or even qualified practitioner, to have performed every operation, or to have examined every case with which he will have to meet in the "struggle for existence." But to me it is equally certain that he may by diligence carry away from college with him knowledge on which to base the superstructure of his practice, which is all that can be required of a young practitioner.

Mr. Greaves, referring to the duty of the examiner, said, or implies, that "Unless there was some written evidence to show that he has been amongst sick and lame horses, the examiner has no guarantee that such student knows anything whatever of general practice, *except by seeing him do the work himself.*" "Yet the examiner is obliged to vouch for them." I hold that written evidence has nothing whatever to do with an examination of actual work. The duty of the examiner of the Royal College of Veterinary Surgeons may be undoubtedly inferred from the words of the diploma to which he subscribes—*i.e.*, "That having examined, and having found him duly qualified to practise, etc., the art and science of veterinary surgery and medicine, he is hereby declared a member," etc. Any examiner who takes written evidence in lieu of a personal examination of a man, runs the risk of issuing a fraud on the public, and of placing the young member in a false position. Within twelve months it would not be possible to see a student do the work himself; while a moderate space of time is all that is necessary for the qualified examiner to discover whether a student or practitioner possesses the requisite amount of knowledge of principles. I do not believe that any of our examiners would do themselves and the public the injustice of signing the diploma, unless they were convinced of this.

In regard to the student and the profession, the duty of the examiner is of paramount importance, and in any alteration in the constitution of the examining board, it is most essential that such should be the deliberate and discreet act of our Council, with whom the possession of all qualifications necessary for examining, and especially a thorough acquaintance with general principles, should outweigh any imaginary claim of popularity or locality.—I am, sir, your obedient servant, JOHN PEMBERTHY.

Royal Veterinary College, London, N.W.,
December 13th, 1884.

"MURMURS."

SIR,—The very acrid eructation emitted from the disordered mental digestive apparatus of your correspondent, C. Cunningham, is a fair sample of the grumbling, discontented disposition of a certain number of members, more especially of some who dwell across the Border. Mr. Cunningham may be a very clever man, perhaps a "luminary," but we have no evidence of it so far as I can ascertain. It certainly requires no ability to find fault—in fact, fault-finding is one of the easiest things in the world, and the ease with which it can be performed is only too often exemplified by those who, like Mr. Cunningham, inveigh against the Royal College of Veterinary Surgeons, its Council, examiners, and everything it does. I do not wish to go over all the ground your correspondent has traversed, but will simply refer to a few of the points he deals with. And, first, with regard to the Fellowship,—probably this degree is a matter of sour grapes to Mr. Cunningham, as it is to some others. At any rate, he has no business to abuse it without better knowledge than he appears to possess regarding it. It was instituted with a good object, and that object has not been departed from. So far as I know, no young fellows who appeared before the Examining Board, got very easily over the bridge; on the contrary, their examination in general and professional knowledge was most satisfactory, much more so, I fancy, than Mr. Cunningham's would be. These young fellows are, I have reason to think, among the most promising the profession can boast of. However this may be, men who manifest their laudable ambition to rise in their profession, and to enhance the value of their professional position by becoming candidates for the Fellowship degree, are more worthy of congratulation than those who sneer and scoff at it, simply because they have not the aspiration, the courage, or the knowledge to attempt it. Let Mr. Cunningham try, and he will undoubtedly discover that the examination is not so easy as he imagines; indeed, he might find that he would be remitted to his studies at Slateford for a time. It may be true that one of the examiners retired; if so, it was probably because he found himself incompetent for the task. I would caution Mr. Cunningham not to place any reliance on the "murmurs" he hears with regard to this and other matters connected with the Royal College. "There is a lying spirit abroad," especially towards the Scottish capital, and its evil effects have been remarked for a long time, resulting as they do, in a tendency to create discord and disunion. In this respect we are too much reminded of the old nursery rhyme concerning one Taffy, of the Principality, who had a weakness for the beef and bones belonging to his neighbours. Motives, personal character, and reputation are all unmercifully assailed, and in an underhand, behind-back manner.

I am unable to discover in what way our colleagues in Scotland are superior to their brothers in England, Wales, or Ireland; according to Mr. Cunningham, they are perfection in the north, elsewhere they are fools and rogues. If we look at the course of events for the last twenty years, we cannot discover this claim to superiority; in fact, in all the recent progress that has been made in raising the profession, they have simply not been "in it." Indeed, it would appear that some of them have rather been opposed to the emancipation of the profession from the fetters which bound it; as witness a certain meeting held in Edinburgh to oppose the Veterinary Surgeons Act, and, more recently, the action taken in opposition to a charter, the object of which was to greatly benefit the profession and the country. For a long time it has been obvious that an Evil Spirit has got among some of our Scottish brethren and has taken possession of them. I would beg of them to cast it out; let it enter swine, as they are the only fit receptacle for it. To

all appearance, the object in Scotland (indeed it has been avowed as the object of the Agricultural Society) is to keep veterinary education down to the level of the Highland shepherd and north-country blacksmith. Surely this should not be. Allowance must be made for the fierce and deteriorating competition between the three Scotch veterinary schools, whose doors refuse admission to no one, literate or illiterate. These schools must fight to live, like the Kilkenny cats, until there is nothing left but their tails, or even less. But surely that is no reason why the Scotch practitioners should hold themselves aloof from all movements which have a tendency to raise our position, nor why they should content themselves, like Mr. Cunningham, by jeering at and deriding the efforts which have been made, and successfully made, by veterinary surgeons elsewhere. The attitude they have assumed is altogether an unworthy one, and if they wish for recognition in the Council and elsewhere they should abandon that attitude. It must be remembered that it was the action maintained in Scotland for so many years, that prevented union and retarded political emancipation up to the last moment, when it was achieved without Scotch assistance.

It is rather amusing to observe the way in which Mr. Cunningham speaks of the National Veterinary Medical Association. He asks it to visit Edinburgh. Why should it go to Edinburgh? The number of veterinary surgeons in Scotland who belong to it could, perhaps, be counted on the fingers of one hand, and notwithstanding invitations to attend its meetings, they have studiously ignored it, and declined to have anything to do with it. It would be imposing too much on good nature to ask the members of the Association to meet where they are evidently not wanted. When Scotch members show a disposition to assist the Association, then it will be time to speak of visiting Scotland.

With regard to national representation of the Council, I must confess I have no objection to it, though I think it would result in much amusement, and a good deal of comedy. If such a change should take place, I trust Scotland would be better represented than she has yet been. Let her send Scotchmen, not Welshmen and Englishmen, in order that we may see how far Mr. Cunningham's boasting is well-founded.

There is much more I would like to say with regard to Mr. Cunningham's letter, every paragraph of which could easily be traversed; but I fear I have already intruded too much on your valuable space; so I will say no more at present.

F.R.C.V.S.

PROFESSIONAL WANDERINGS.

Sir,—Pressure of business has prevented earlier attention to this subject. *Apropos* of the expense of qualifying by a curriculum, and not by "Act of Parliament," it is hard lines that by what we consider egregious blundering we are placed on a par with persons without professional knowledge, many most illiterate and of varied occupations, from that of a country pedagogue to the hewer in a pit, or the rat and mole catcher. How will the kid-gloved, be-ringed members of the profession, some of them most earnest advocates of the measure, relish being placed in the same category, as is the case, before legal tribunals? Many of those registered *had no claim* had their applications been thoroughly investigated, but where objections were raised there were so many difficulties in the way of substantiating the proof that would have occupied considerable time and expense, and many thought that the animus against proof, and for admission, would render it labour in vain, that even in clear cases they threw the matter up in disgust. It may be that we are obtuse; but we do not quite understand where the money went. Will these recruits raise the status of the profession? The most powerful argument in its favour is that it will be of great *future* benefit. This is following out the Jesuit maxim, "Do evil that good may follow." Our Council representatives may

be said to ape the ways of municipalities, careful of their constituents' interests and favourable to progress, until *elected* afterwards. Why do not some of them answer the complaints that have been made respecting the silence of the authorities on the subject of offences under the Act, or stimulate them to some kind of action, at least, to the courtesy of a reply to these grievances?

Supposing our man to have obtained a diploma, and having had no previous training, he seeks a situation as an assistant, almost always giving his valuable (?) services for the opportunity of "seeing practice." This statement is borne out by the advertisement columns of our professional journals. As a matter of economy this often tempts practitioners, but it is a cheese-paring policy that often detracts, and properly, from a master's credit. By far the great number of these aids are not worth their salt: they are mere stop-gaps. To entrust them with the treatment of valuable animals, except most trivial cases, is not only to endanger the lives of these, but is a fraud—obtaining money under false pretences, *i.e.*, for skill rendered; for how can this be so when no skill is possessed?

The preceding observations apply to new graduates, and not to pupils. The display of ignorance is not confined to practical matters, but is on subjects which, as recent students, they ought to be especially accurate, as compared with the practitioner, who is in the hurly-burly of active duty.

One of these gentlemen recently gave such a technical definition of Splint in a law case as made him the laughing-stock of the court.

Some will say these must have "a learning"; conceded, but it is unfair that the country should pay for their education, as it does by losses from inefficient or unskilled services. If owners of animals were alive to the actual merits of the so-called assistants of some large and important establishments, their returns would be very considerably reduced. A good many of these young gentlemen carry all before them by their impudence, aided by the adventitious aid of a stylish appearance.

It takes more than a month or two to make such as these into even ordinary practitioners. Their egotism and conceit is a stumbling-block to the acquirement of knowledge: if offered advice on subjects they are most ignorant upon, they meet it with foolish argument, based on speculative hypothesis, or even affirm that it is to them an old story, but they possess knowledge far in advance of it. As a rule, on most points they are most blatant, especially on their own qualifications, forgetting—

> "That on their own merits
> Modest men are dumb."

Town practice is generally selected by those who have had no pupilage. Many country practices pass to some junior of the family, or to a pupil, and there are many instances of these now worked by a third generation. As far as both physical and mental labour are concerned, a town business is by far the easiest; it requires less ability, as there is not that diversity of disease, and the pay and status are higher. Why the last should be the case has always been a mystery to us.

To be successful in a large town, certain things are necessary. First, and most important, sufficient capital to make, and maintain for some time, an important appearance. Men now-a-days are seldom judged by the bard's standard—"Gold is but the guinea's stamp"—but by the quality and style of their surroundings. It is absurd to suppose that brains or ability make success sure; rather trade on borrowed capital, and by ostentation and tact push your way. To be sure it is a false way, but it makes you "hail fellow" with those who otherwise would not notice you, and who, in the ardour of a recent friendship, considerably further your interests. Worldly experience proves how few there are that weigh the quotation—

"By outward show let's not be cheated;
An ass should like an ass be treated."

If our social position is apparently good, the jealousy of our *confrères* will be *sub rosa;* but be once down and you are everything that is bad, and although fear of consequences makes some of them somewhat careful, they convey to the full their meaning by inuendo and covert sneer. Then your skill or knowledge recks but little, and the waiting is long and weary. But—

"Honour and shame from no condition rise;
Act well your part, there all the honour lies."

There are several things in which we might expect town veterinarians to be specialists; these are such affections of horses as Lamenesses, Catarrh, Influenza, Catarrhal and other Fevers, examinations for purchase, etc. We know of none so exceptionally skilled as to be above many of their country brethren, although, by an easy assumption, they often over-rule the latter, even when their judgment is at fault. Specialists seldom exist, except where leisure is obtainable. Many an ugly blunder our town brethren from large establishments make that is glossed over, that in one of lesser standing would be almost a crime. Some town practitioners owe much of their importance to their livery, bait, or sale yards, and much of their returns to commissions on the sale of horses. We look on these, especially the last, as *infra dig.*, and underhand, if not dishonest. So much do some give up their time to this, that they cease to care about the profession, except for the money it brings to their pocket. We hold that for a man to be a clever practitioner he must thoroughly enjoy it.

An old acquaintance of ours, who has been in a pecuniary sense more than ordinarily successful, recently said, "I never cared for the profession; I like the examination and purchase of horses." Knowing his failing we quite believed it. *It paid him better.* This gentleman claims to be a specialist in examination, and he is, if the most glaring blunders "in wind, limb, and eyesight," constitute it.

In those cases that we might expect special knowledge, the town veterinary surgeon is lamentably deficient.

Recently, in a disputed case, an animal was diagnosed "lame in the foot." Thorough examination revealed nothing; the horse had fallen hind-end first into a deep hole, and had lifted his heavy carcase out by his fore-legs by dint of hard struggling. There was every indication of sprained shoulder; he was blistered, and recovered. Cases of open joint have been treated as common wounds, with two pledgets and carbolic oil dressings—in some instances for weeks—until disease of the articulation has occurred, and during the period the owner has lived in a fool's paradise, getting favourable bulletins without the least warning of the gravity of the case, until it became quite patent even to his inexperienced vision. Do such things occur through ignorance?

We have very recently had an illustration of exceptionally peculiar treatment of a simple wound. It was the result of an injury—its direction being from above downwards—in muscular tissue. Although a dependent exit could, without the least risk, have been made for the discharge, *it was treated from above.* The consequence was an attack of Pyæmia, formation of vomicæ, penetrations of the discharge from the wound into the body, and death. A week or ten days before death the report was, "will be ready for work in a week or so." Yet we boast ourselves on the advance of knowledge in the profession. We had a case of Quittor brought to us that had been under daily treatment for over six weeks; but as we are already in "hot water" we declined to undertake it. But a friend of the owner's, a handy man, by our advice, had him thoroughly fit for work in three weeks.

There are in many large establishments *stock* preparations known as "*The Lotion*," "*The Liniment*," "*The Draught*," forcibly reminding one of the old

school of medicos, who, for paupers and club-patients, as a matter of economy both of money and labour, put all the "odds and ends" of physic in a common receptacle, adding some salts, senna, and decoction of aloes, the whole constituting "Black Strap," and being a panacea, for the classes mentioned, for all the ills the flesh is heir to.

Within the last two or three years a novel name has been introduced amongst us, to wit—Epizootic Cellulitis (*vulgo*, Pink-eye). It is a new name for an old and easily-recognised disease, and had the gentleman who originated it been better versed either in veterinary literature or pathological knowledge, he would have hesitated before he had exposed himself to ridicule. Pink Eye! Why not call it "Pink Nose," or "Pink Mouth," as these parts are often as highly-coloured, and very frequently more so, than the conjunctiva? As to its novelty, it existed before the birth of the gentleman who coined this name, and its more recent characteristics were common enough years ago, and were spoken of by Mr. Lord (an Army V.S.) as *Gastritis Mucosa*. At that time it prevailed in all large towns, especially in the metropolis, and as it was said to have been introduced from France, it was called the French Distemper.

It is neither more nor less than Catarrh, or Catarrhal Fever—a complication of Influenza.—Yours truly, A PERIPATETIC.

(To be continued).

"BURSATTI."

SIR,—As I find that recently my name has been mentioned in an article published in your Journal on Bursatti, I shall feel much obliged if you will correct several errors of expression and omission in the statement referred to (p. 161, September Number, 1884). I did not "distribute specimens" of the fungus cultivated by me from Bursatti *Kunkur*, but I one day, when the culture was in full swing, happened to be going up to London from Woolwich to see the P.V.S. at the War Office. Just as I was starting it struck me that he might like to see a specimen of the fungus, so I took some out of the fluid, put it roughly on a slide, and protected it with a cover-glass, wrapped it in the first piece of paper which came to hand, and carried it up to town in my waistcoat pocket. On my arrival at the War Office I found on examination that the slight frictions to which this specimen had been subjected in my pocket during this rough transit had practically disintegrated the fungus, of which I could only show Mr. Fleming very slight and scarcely distinguishable traces. I fear this luckless specimen is the one "obtained through the kindness of Mr. Fleming, which I at once made over to Mr. Garside, then at the Brown Institution, London, and requested the favour of his opinion on what were labelled as indubitable fungi." I should have been very much surprised had Dr. Roy and Messrs. Garside found anything but *tissue debris* on this slide when they examined it. Who can tell what amount of exposure to light and other influences deleterious to fungi it had been subjected to before they had an opportunity of examining it and since? I examined it prior to starting for London and labelled it "indubitable fungi." These circumstances have to be given with what may seem undue prolixity, because the examination of this specimen with negative results has been adduced as a severe blow to the view of Bursatti being parasitic in its nature. I may now add, since my crude observation on this occasion has been dragged before the public, although I did not consider it exact enough to be considered worthy of record, that although I fully believe that in this case I saw the cultivated Bursatti fungus, my methods of culture were so little elaborated (I believe I was unsettled just prior to my departure for India) that I deemed the observation not exact enough for record, and simply as of value in encouraging the culture method of investigation which has since given such excellent results in the hands of V.S. Frederick Smith. The trivial matter

which I have now been compelled to notice is quite distinct from the observations and facts given in Volume xiii. of the Journal, October, 1881: in which paper I have studiously endeavoured to separate facts observed from my theoretical deductions from those facts.

Bangalore, 28*th October*, 1884. J. H. STEEL, M.R.C.V.S.

VETERINARY JURISPRUDENCE.

SIR,—I should like to ascertain, through the medium of your valuable journal—(1) whether a registered practitioner is justified in calling himself a veterinary surgeon in the witness-box in a court of law, and whether his evidence in a professional respect is to be taken in preference to the evidence of a member of the Royal College of Veterinary Surgeons? Also (2) whether it is possible to preserve in an open vessel without the aid of spirits of wine or other antiseptic, for twelve weeks in the heat of summer, the lungs and liver of an animal in such a state as a M.R.C.V.S. would be warranted in swearing that they were the subject of a particular disease of six months' standing before the death of the animal, and that this disease was the cause of death? And lastly, (3) whether it would be possible to preserve them in a fit state in an open vessel, even with the aid of the best preservative known?

"JUSTITIA."

[1. The law does not prevent a registered (existing) practitioner calling himself a veterinary surgeon. Whether his evidence in a court of law will be accepted in preference to that of a M.R.C.V.S., will depend upon the nature of the evidence and the judge and jury. 2. No. 3. No.—ED. *V. J.*]

NOTE.

WE are requested to publish the following corrections to be noted in Gresswell's recently published "Theory and Practice of Equine Medicine":—Page 46, line 6, for "pyrogenica," read "pyogenica"; page 97, line 11, for "hænarhagica," read "hæmorrhagica"; page 172, line 15, for "of," read "or"; page 186, line 4, for "serous," read "venous"; page 330, line 20, for "tonic," read "toxic."

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from G. A. Banham, Cambridge; W. Brydon, Boston, U.S.A.; R. Dyer, Limerick; T. Walley, Edinburgh; J. H. Steel, A.V.D., Bangalore; T. Chalwin, Adelaide; "F.R.C.V.S."; M. E. Stevenson, Goole; W. Robertson, London; C. W. Gregory, Bristol; R. J. Dawson, Wickham Market; J. Donald, Wigton; W. Leather, Liverpool; W. Wilson, Toronto, Canada; A. Shawcross, Louth; J. Roalfe Cox, London; G. Fleming, London; "Libra;" "Justitia."

JOURNALS, ETC.: *Der Thierarzt; Wochenschrift; Lancet; Live Stock Journal; Mark Lane Express; Echo Vétérinaire; Annales de Médecine Vétérinaire; Revue Vétérinaire; Journal of Comparative Medicine and Surgery; Recueil de Médecine Vétérinaire; Repertorium für Thierheilkunde; Archives Vétérinaire; Archiv für Wissenschaftliche; Œsterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; American Veterinary Review; Der Hufschmied; Chicago Live Stock Journal; Clinica Veterinaria; Animal World; Edinburgh Medical Journal; Tidskrift für Veterinar-Medicin; Canadian Dairyman and Farmer; Animalia; Kansas Live Stock Indicator.*

BOOKS AND PAMPHLETS: *George Pauntscheff*, Untersuchungen über den Magen der Wiederkäuer; *Fr. Rom. Tobolewski*, Kurze Uebersicht über Bau, Zweck und Krankheiten der Haare; *J. A. Nunn*, Indian Civil Veterinary Reports; *C. W. Gregory, M.R.C.V.S.*, The Principles and Practice of Shoeing.

NEWSPAPERS: *South Australian Advertiser; North British Agriculturalist; Bristol Times and Mirror; Yorkshire Herald.*

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

FEBRUARY, 1885.

OBSERVATIONS ON THE TREATMENT OF TETANUS IN HORSES.

BY J. B. GRESSWELL, M.R.C.V.S., LOUTH;

WITH SHORT REVIEW OF THE PHYSIOLOGICAL ACTION OF THE DRUGS EMPLOYED,

BY ALBERT GRESSWELL, M.R.C.S.

IN bringing before the notice of the readers of the VETERINARY JOURNAL the subject of the special treatment of Tetanus in horses, it is intended, firstly, to briefly review the physiological action of the remedies which have been advocated by various eminent authorities; secondly, to indicate the effect which has attended the use of each in our hands; and lastly, to suggest a method of treatment which some others may possibly think well to adopt.

The most important of the drugs from time to time advocated in the treatment of Tetanus in man and animals are the following, alphabetically arranged:—Aconite, amyl nitrite, belladonna and its alkaloid, atropine; bromides of ammonium, potassium, and sodium; Calabar bean and its alkaloid, physostigmia; cannabis Indica, chloral hydrate, chloroform, conia, curare, gelseminum, hydrocyanic acid, opium and its alkaloid, morphia; potash (bicarbonate and hydrate of), quinine, salicine, tobacco and its alkaloid, nicotine.

All of the above remedies have been tried in our treatment of

Tetanus in the horse, with the exception of curare, or urari, the efficacy of which we ourselves have no experience of.

We shall, therefore, not allude to this drug again; but may mention that cases of Tetanus in man have been treated by the hypodermic injection of the "South-American Indian arrow-poison," and that this remedy has been used in the treatment of Chorea and Hydrophobia in man, as well as in physiological experiments on animals, in order to paralyse muscular movements.

Aconite.

1. *Physiological Action.*—Aconite, when given internally, always reduces the strength of the pulse, and thus retards the circulation. When administered in moderate doses this powerful depressant reduces the number of the beats of the heart, and renders the breathing slower; while, when large or poisonous doses are taken, the pulse is accelerated, and the breathing becomes sharp and hurried. Physiological observers have shown that aconite paralyses the heart of pigs, arresting its action in systole.

After death from aconite the heart fails to respond to galvanic stimulation; and it is, therefore, believed that this poison affects the cardiac muscle itself.

According to the experiments of Ringer and Murrell, aconite paralyses all nitrogenous tissues, and affects all the structures of the heart—viz., in the first place, its ganglia, next the nerves, and, finally, the muscular substance. Regarding the action on the nervous system, Boehm concludes that aconitia first paralyses the sensory, and then the motor, part of the cord; while Liegois and Hottot believe that it first paralyses the perceptive centres above the spinal cord, and afterwards the terminations, and, lastly, the trunks of the sensory nerves.

The latter observers record that frogs poisoned with aconite lose sensation, whilst voluntary and reflex action remain; and reflex action itself ceases whilst the animal still retains voluntary power.

On administering strychnia, these observers produced Tetanus, the paroxysms of which could be excited by irritating any part of the body. They, therefore, conclude that at this stage the sensory nerves are not affected, and that anæsthesia depends on the influence of the aconite on the sensory perceptive centres.

After a time, however, irritation of the afferent nerves fails to excite a tetanic paroxysm ; wherefrom they conclude that aconite next paralyses the terminations, and then the trunks of the sensory nerves. According to Ringer, aconite is a protoplasmic poison, and destroys the functions of all the nitrogenous tissues—first, of the central nervous system, next of the nerves, and, last, of the muscles ; but it has an especial affinity for the sensory apparatus, paralysing first the sensory perceptive centres.

Aconite, like tartar emetic and *potash salts*, is a powerful depressant ; and Ringer suggests that these drugs do not merely depress through their paralysing effect on the heart, but that they depress also by their poisonous action on the central nervous system and on the motor nerves and muscles.

Value of the preparations of Aconite in Tetanus.—In the treatment of severe cases of Traumatic Tetanus, we have found few drugs of more benefit than aconite. It is our practice, in cases of Acute Tetanus following the infliction of an injury, to administer hypodermic injections of about ten minims of Fleming's tincture. The efficacy of this method of treatment is more marked in plethoric animals, and when the febrile symptoms manifested are of a severe character. But ordinary cases of Idiopathic Tetanus do not seem to derive much benefit from aconite ; in such cases, as well as in those forms of Traumatic Tetanus supervening after the lapse of a long interval from the infliction of the injury, we prefer the hypodermic injection of morphia. The use of aconite in the treatment of Tetanus in the horse requires care and judgment.

Amyl Nitrite.

Physiological Action.—When the vapour of amyl nitrite is inhaled, there is caused a large and rapid fall of the blood pressure, and the heart's action becomes accelerated. This fall of the blood pressure is due mainly to the great dilatation of the arterioles, and, after large doses, to depression of the heart. If the inhalation be stopped, the arterial blood pressure rapidly returns to the normal.

The dilatation of the arterioles is believed by some to be due to the direct action of the drug upon them, and not to any

influence exerted on the vaso-motor centres. Dr. Brunton believes that the nitrite partially paralyses the sympathetic ganglia and their motor nerves. Nitrite of amyl does not affect the motor or sensory nerves until just before death.

Dr. H. Wood has shown that loss of reflex action and of voluntary power occurring after large doses is due to the depressing action of the drug on the motor tracts of the cord, and, to a slight extent, on the motor nerves and on the muscles.

On the sensory tracts of the cord it seemingly has no effect, nor has it any on its co-ordinating centres.

It abolishes reflex action, but whether it depresses the reflex function of the cord is uncertain, as it may simply act on the motor part of the cord.

Value of Nitrite of Amyl in Tetanus.—We are not aware whether this remedy has been much used by others in the treatment of Tetanus in the horse, but we believe that but few cases have been treated by it.

In man this remedy has been used in Tetanus to allay the spasmodic attacks ; and, though we have not a large experience of its value in equine practice, we believe that its action for this purpose is not so efficient or beneficial as is the inhalation of chloroform : yet, nevertheless, it does seem to have a beneficial action ; but that relaxation of the jaws to be obtained by inhalation of chloroform did not follow in the instances in which we gave the nitrite a trial.

Belladonna and Atropine.

Physiological Action.—If a small dose of atropine be injected into the jugular vein of a dog, the cardiac and respiratory movements will be quickened, and the arterial blood pressure will be raised.

The quickening of the heart's action is due to the paralysing of the cardiac inhibitory filaments of the vagi ; the acceleration of the respiration is due to stimulation of the respiratory centre in the medulla ; while the raising of the blood pressure is due to contraction of the systemic arterioles, probably through the medium of the sympathetic.

Atropine has both a paralysing and a stimulant action on the spinal cord ; but the former effect is greater than the latter.

In order to show the spinal stimulant action of atropine, animals whose respiratory muscles may be paralysed without causing death have been experimented upon. In the frog, a dose below the fatal minimum paralyses, firstly, the cutaneous sensory nerves, next the motor nerves and spinal cord ; it does not impair idio-muscular contractility.

After the lapse of a variable number of hours or days, tetanic symptoms, not unlike those of strychnia-poisoning, are produced ; these are due to the excitant action of the alkaloid on the spinal cord. This effect of atropine on the spinal cord was pointed out by Dr. Fraser, who has shown (1) that in frogs tetanic symptoms follow the subcutaneous injection of a dose of sulphate of atropia equivalent to about 1,000th of the weight of the animal; (2) that this Tetanus sometimes sets in on the second day, but more frequently on the third, fourth, or fifth ; (3) that it varies in its duration from a few hours to seventeen days ; (4) that it is due to the action of the drug on the cord (medulla oblongata and medulla spinalis). The afferent or sensory nerves are unaffected, or but little affected, by atropia. The accelerator nerve of the heart is probably stimulated by it.

Ringer thus summarises the probable effect of atropia :—

(1.) It tetanises the cord, and heightens its reflex function.

(2.) It stimulates the respiratory centre and the inhibitory centre of the heart.

(3.) It stimulates the cardiac accelerator nerve or its centre.

(4.) It stimulates the vaso-motor centre, and so heightens arterial pressure.

(5.) It paralyses the motor nerves, first affecting the trunks.

(6.) It paralyses the terminations of the vagi, both in the heart and lungs.

(7.) It paralyses the terminations of the secretory nerves of the salivary glands, and perhaps those of the sweat glands.

(8.) It paralyses the terminations of the inhibitory fibres of the splanchnics.

(9.) Large doses slightly depress the functions of the afferent nerves.

(10.) It paralyses the terminations of the oculo-motor nerves, and stimulates the sympathetic, so far as the iris itself is concerned.

It appears, therefore, whilst it acts as a stimulant to a large part of the central nervous system, to many of the nerves it operates as a paralyser.

Value of Belladonna and Atropine in Tetanus.—Belladonna and its alkaloid, atropine, have been extensively used for the treatment of Tetanus. The late Mr. D. Gresswell used it for some time, but renounced it entirely after a good trial, believing it to be of little value. We have also arrived at the same conclusion, and never use it now in the treatment of this disease in the horse.

In the VETERINARY JOURNAL, March, 1884, Mr. Davis records that he administered one-grain doses of sulphate of atropia every three hours, but without effect on the spasms. From the above physiological review of the action of this drug, it seems, moreover, unlikely that we could expect that it would prove very beneficial in Tetanus.

Mr. Charles Gresswell, of Nottingham, also is of one opinion with us regarding the use of belladonna in Tetanus.

BROMIDES OF AMMONIUM, POTASSIUM, AND SODIUM.

Physiological Action.—We need say little of the physiological action of the bromides, as their use in disease depends more upon the accumulation of clinical evidence of their value rather than upon physiological experimentation, which has yielded somewhat contradictory results.

The bromides, according to Brown-Séquard, contract all the blood-vessels, producing anæmia of the brain and spinal cord, thus diminishing the excitability of these organs. Bromide of potassium induces in animals a decided diminution of reflex irritability and of cutaneous sensibility; and experiments render it probable that this diminished reflex irritability is due in part to the effects of the drug on the reflex function of the cord, and in part to its effect on the sensory nerves.

Value of the Bromides in Tetanus.—The bromides have been extensively given in the treatment of Tetanus, and are of undoubted efficacy in diminishing the severity and duration of the paroxysms. These remedies, however, cannot be relied upon in the treatment of Tetanus, but they may be administered along with other medicines of greater potency.

We do not often use the bromides now, unless the case be of an unusually mild type, as their efficiency, never very great, cannot be relied on in severe cases.

The bromides used by us were the salts of potassium and ammonium.

Calabar Bean and Physostigmia.

Physiological Action (Abstracted from Dr. Fraser's investigations).—An animal when under the influence of a small but fatal dose speedily manifests a slight tremulousness, which increases until the whole frame becomes limp and flaccid; then follows general paralysis, the bowels and bladder are emptied involuntarily, and the pupils generally contract.

At this stage all reflex action of the cord is destroyed, and if the animal is anywhere irritated, the contractions respond to the call. Respiration becomes gradually slower and slower, and at last ceases. Immediately after death the pupils dilate and the muscles appear to be unaffected; they contract when cut, and respond to the irritation of their nerves.

The paralysis of the muscles has been shown by Dr. Fraser to be due to changes effected on the *spinal cord itself by the poison*. He found that he could excite no muscular contractions by galvanising any part of the cord of an animal poisoned by the bean; while the motor nerves still retained their functions, and easily transmitted impressions to the muscles, which, on their part, freely responded to very slight stimulation of their proper nerves.

The reflex functions of the cord were destroyed long before the nerves lost their conducting power. After the loss of reflex power in animals poisoned by Calabar bean, pretty active muscular contractions could be excited by mild galvanic stimulations of the motor nerves.

Dr. Fraser recommends, from his physiological researches, Calabar bean as an antidote to strychnia; and he points out its superiority to curare, which paralyses only the motor nerves, while the former paralyses first the cord, and then, after some time, the motor nerves.

Physostigmia raises the blood pressure, and is also a respiratory poison, and, indeed, generally kills by paralysing the respiration.

Value of the Calabar Bean and its Alkaloid in Tetanus.—Reasoning from the facts above mentioned, we should expect that Calabar bean would prove a most valuable medicament in Tetanus. Some cases in man have been treated by physostigmine, and have terminated successfully, but in equine medicine this powerful spinal sedative has had a far larger and more extensive trial.

It would be interesting if statistics as to the result in each case could be collected, as opinions as to its value are not unanimous.

Our experience of the drug is more limited than in the case of other remedies ; but, judging from what we have seen of its value, we do not think so favourably of its action as to warrant us in relying on its efficacy.

Cannabis Indica.

Physiological Action and Value in Tetanus.—Of the physiological action of cannabis Indica much still remains to be learnt.

In its anodyne and soporific action it resembles opium. It has been chiefly employed in medicine for its anti-spasmodic and anodyne powers, and has been administered in man and in the horse for the treatment of Tetanus. In our experience cannabis Indica is not of great value in Tetanus in horses, and we, therefore, do not advocate its use.

(*To be continued.*)

OBSERVATIONS ON THE NORMAL INTERNAL TEMPERATURE OF INDIAN TRANSPORT ANIMALS.

Paper I.

BY JOHN HENRY STEEL, M.R.C.V.S., A.V.D., ON SPECIAL SERVICE, RANGOON.

Subjects.—Thirty-two male camels, mostly old and in poor condition, of the Bangalore Transport, observations made between eight and ten o'clock on morning of the 23rd October, 1884, when the external temperature was 73° F. in the shade at 8 a.m. The camels were standing in two rather close sheds, none suffering from "musthi" (rutting).

Place.—The observations were all taken at the rectum, and

with self-registering clinical thermometer as supplied for Government service.

Preliminaries and Detail.—Most of the camels were quiet during examination. They were always made to "sit"; occasionally, in resentment of manipulation of the anus, they tried to bring the buttocks to the ground, or violently attempted to bite or to rise. Two assistants were necessary—one to hold the tail and one the head. Often a number of ectozoa were collected beneath the tail. Sometimes dung-balls in the rectum prevented free introduction of the instrument. Occasionally there was spasmodic closure of the anus. Generally removal of the dung-balls, lubrication of the anus with ghee (butter), and gentle pressure, sufficed for introduction of the instrument. A few of the observations were made with the bulb penetrating only about three inches, but generally the instrument was passed in as far as practicable. In all cases it was retained four minutes. The investigation was made under my close and exact supervision, the thermometers being used by Farrier-Major Inglis and Farrier Havildar Saffar, of the 1st Madras Light Cavalry, and by Salootri Abdool Rhymon, of the Madras Transport branch. Conductors Ward and Maddox assisted in supervision and time-taking.

Results.—The average internal temperature of the camel, taken at the rectum of an animal under the conditions described above, is 99° F.

2. The maximum reading obtained was 102·6° F., but the animal was probably the subject of some fever,* since only in two other cases was the temperature over 100° F., *i.e.*, 100·4° and 100·8°.

3. The minimum reading obtained was 98·2° F.

4. The average poor condition of these camels renders it probable that the normal reading is somewhat higher that 99° F. I should put the health limits at 98° F. to 101° F.

5. Thermometry promises to prove a valuable addition to our means of exact diagnosis in cameline diseases.

N.B.—Prior to this investigation, I felt interested to determine whether, since in so many features of structure the camel resembles the horse, and in others the ox, his temperature is high,

* He died the following day of Anthrax—a rare disease in the camel.

like that of the ox, or moderate, like that of the horse. I find the latter to be the case ; but, it must be remembered, Government camels are often scantily fed.

Subjects.—Three elephants of the Bangalore Transport—two female, one male—standing in the open at 10 a.m. Temperature taken at rectum.

Preliminaries and Detail.—These animals are very nervous at the operation. Require to be judiciously handled, or they will rise from the kneeling posture which they should be made to assume, impede the operation by passage of urine and fæces. There is a lot of loose skin around the anus, so the thermometer has to be passed in very deeply. The tail is powerful, requires two men to hold it, and then is apt to press on the hand at the anus very forcibly.

Results.—My researches so far lead me to believe that the normal internal temperature at the rectum is 97·6° F.—a reading equal to the normal of the horse therefore shows high fever.

SCAPULO-HUMERAL DISLOCATION IN THE HORSE.

BY J. K. PILKINGTON, M.R.C.V.S., GARSTON.

HAVING read the article on this subject in the VETERINARY JOURNAL for December, 1884, by P. S. Abraham, M.A., B.Sc., F.R.C.S.L., etc., I would like to add a few remarks of a case under my care, which I had intended as an article for this Journal on some future occasion.

The accident in this case, which I wish to bring under notice, happened thus :—

A bay mare, four years old, had only arrived in Liverpool two days from Ireland. The owner, a friend, and their two apprentices took her for a drive into the country for a trial. On their return journey the friend wished to see if she was steady in saddle, so placed his apprentice on her back, contrary to the wishes of its owner. After galloping some considerable distance at a furious pace, it dashed on the narrow pathway between the wall and lamp-post, striking its right shoulder against the latter, throwing both heavily to the ground. I was sent for, a mile in distance.

Finding the animal still on the ground, with great difficulty we got her upon her feet, scarcely able to stand.

On examination, I found the shoulder very much swollen and bruised, slightly deformed, and she was unable to bear any weight upon it. I was of opinion that it was partial fracture of the scapula and dislocation of the joint. Many who were present said it would be better to destroy her, that she would never do any good. But the owner and myself wishing to give it a trial, we had a low float brought, and with plenty of assistance, got her in, and had her taken to a loose-box at my place.

Treatment.—I at once applied hot-water fomentations, with a strong solution of arnica, of course giving a small cathartic dose, and continued doing so for seven or eight days, when I found she placed the leg in a proper position (bearing no weight), swelling reduced, but scarcely able to move. I then placed a seton from midway in front of the scapula, down under the chest in front of shoulder-joint; then applied a blister, which was repeated several times.

When the discharge was at its height, on going to examine her in the morning, I noticed symptoms of Tetanus—no doubt traumatic, from the effects of the wounds and seton.

Let me here refer briefly to the case of P. S. Abraham, in which he says, "Finally, ten weeks after the accident, Tetanus sets in." I think that case was traumatic, from the "sore on the withers caused by the tight strap" mentioned. I at once removed the seton and applied a solution of belladonna, keeping the parts well cleansed. She, however, got over that in a few days. Afterwards she went on very well, and in eight or ten weeks after the accident was turned out to grass, where she remained for three months, at the end of that time she could walk fairly well, but there was a shooting or gliding forward motion of the whole joint at every movement of the leg, no doubt caused by the atrophied condition of the caput magnum, medium and parvum, and the teres externus and internus. She remained in this condition when taken home, the owner putting her to slow work, which she does pretty well, with the exception of an occasional trip, being unable to extend and govern the toe in a proper manner.

My reason for entering so minutely into details is that this case was brought to trial. Verdict for plaintiff, with good compensation and costs.

COCAINE.

BY G. D. WHITFIELD, M.R.C.V.S., A.V.D., 5TH LANCERS, DUBLIN.

THIS new local anæsthetic is an alkaloid produced from the leaves of the *Erythroxolon Coca*, a shrub cultivated on the slopes of the Cordilleras of Bolivia, Peru, and Columbia. It was first produced by Nieman in 1860, who found by its local application that it produced anæsthesia of the mucous membrane of the tongue. It afterwards fell into disuse. In 1872, Dr. Hughes Bennett presented a thesis to the University of Edinburgh, entitled "Erythroxolon Coca," and in which the physiological properties of the coca and its alkaloids were fully experimented on. Its effects on the nervous system he sums up as follows :—

" 1st. In small doses, not ending fatally, cocaine causes partial loss of sensibility. 2nd. In doses which are subsequently fatal, it induces, prior to death, general loss of sensibility. 3rd. It destroys the excitability of the posterior columns of the cord, and paralyses the entire system of peripheral sensory nerves, but the anterior columns and the peripheral motor nerves remain intact. 4th. It induces spontaneous convulsions, but, unlike those induced by strychnia, they are not excited by peripheral irritation, owing to paralysis of the sensory nerves. 5th. Special experiments proved that the nerve-endings in the skin and mucous membranes were rendered inexcitable, apart from any action the drug had upon the nerve-centres."

It is this latter action, combined with its limitation to the tissues to which it is applied, that has brought cocaine so prominently forward during the last few weeks, and which renders it so valuable in operations on the eyes, tongue, and larynx. It would be well to notice a few experiments made in the laboratory of Professor Stricker. " A few drops of an aqueous solution were dropped into the eye of a guinea-pig ; the animal closed the eye for about a minute, then opened it, and a peculiar expression of rigidity was gradually assumed ; the cornea was then touched with the head

of a pin—no reflex closure of the eye, or throwing back of the head; on the contrary, perfectly quiet, and by the employment of a stronger irritation it was seen that the eye was completely anæstheticised." In another case he says: "I have scratched the cornea upon which I operated with a needle, pricked the same, irritated the cornea with an induction current, I also cauterised it with a pencil of nitrate of silver until it became as white as milk, all without a single movement on the part of the animal." These experiments conclusively show a loss of sensibility of the superficial parts of the eye, but from the cases recorded, this entire loss of sensibility does not extend to the deeper-seated parts; for instance, in extraction of cataract pain is mitigated, but decidedly felt. The anæsthetic power can only be increased to a certain limit, but the extent of that limit is sufficient to very greatly diminish the sensibility of the deeper-seated parts.

Cocaine may to some extent be compared to curare. The latter paralyses the terminations of the motor nerves, the former the terminations of the sensory nerves. Aconite acts in a manner the reverse of cocaine. In human surgery cocaine is used with good results in the removal of foreign bodies, in iridectomy, and removal of cataracts, tapping the cornea, ulcers on cornea in Entropium and Ectropium, and for removing Pterygiums. In equine surgery it will supply a long-sought want. Operations on the eye are always more or less difficult; the action of the retractor muscle, together with that of the membrana nictitans, is a great bar to operations being successful unless the patients are entirely under the influence of an anæsthetic, and up to this time the only one that has been used for the horse with any degree of success is a general one, viz., chloroform; and many veterinary surgeons have a great objection to using it. In the first place, the patient must be cast before the agent is administered, then extreme care is required after its administration, insomuch that an assistant ought to be available to watch the action, as some horses are more easily anæstheticised than others. What might be an ordinary dose for one, might be fatal to another. Cocaine, on the other hand, is used in a very simple manner: it is only necessary to paint the mucous membrane with an aqueous solu-

tion, or drop it into the eye, when anæsthesia takes place, lasting from fifteen to twenty minutes. A four-per-cent. solution is generally used in human surgery. The action of cocaine being to a great extent superficial, it will be as valuable to the veterinary profession as if its action was deeper seated, as our ophthalmic operations are almost entirely superficial. It will be useful in Entropium, Ectropium, wounds of eyelids, puncturing the cornea in Filaria Oculi, Pterygium, etc. In the latter it has been used with marked success in human surgery—no pain being felt during the operation. I remember removing one from a horse in India (VETERINARY JOURNAL, January, 1882), and the operation was one of great difficulty, through the persistent action of the retractor. In India many veterinary surgeons are very expert in operating for Filaria Oculi, but there are some who are not; to these, and to those who have never operated before, cocaine will be an agent of very great usefulness. At present the drug is a very expensive one—about a shilling a grain. The demand for it is almost greater than the supply. This is a great drawback to its use. The alkaloids of tea and coffee are said to be almost identical in their chemical composition with cocaine—probably they may be found as efficacious, and if so, the cost would be much less.

NOTES ON A CASE OF GLOSS-ANTHRAX AND ANTHRACOID ANGINA.

BY J. B. GRESSWELL, M.R.C.V.S., LOUTH.

IT is noteworthy that, whereas cases of Anthrax proper, or Anthrax Fever, affecting the horse are not uncommon in certain districts in the county of Lincolnshire, cases of localised Anthrax are decidedly very rarely met with in the equine species.

Indeed, during the last three years, though I have had under my notice no less than thirteen cases of Anthrax proper in the horse, the case to which it is my purpose to draw attention is the first example of localised Anthrax in the horse which I have encountered in North Lincolnshire during the same period.

On Sunday evening, December 14th, I was called to see a two-year-old bay cart filly belonging to a gentleman residing in the Wold Land, a distance of six miles from Louth.

The animal was in good condition, and had only recently been brought up from grass.

On careful examination, it was manifest that the case presented the characteristics of Gloss-Anthrax and Anthracoid Angina. The sides of the cheeks and tongue were very much swollen, and were of a dark purplish-brown hue. The tongue was hanging from the mouth, and protruded about six or seven inches. There was a copious eruption of phlyctenules on the sides and dorsum of the tongue, and also on the buccal membrane of the lips and mouth. Thick, yellow-coloured serous fluid was discharged in abundance fron the mouth and nose, and the breath was fœtid. The throat was swollen, hot, and painful, and deglutition was quite impossible. The pulse, which was very feeble, numbered eighty beats per minute, and the respiration was hurried and difficult. The temperature reached 105° F.

On the following morning the symptoms were still more exaggerated. The head and neck were immensely swollen; the tongue, still hanging pendulously, almost completely filled up the cavity of the mouth. The buccal membrane was eroded in patches, as also was the dorsum of the tongue, and yellow serum tinged with blood oozed from the mouth. The pluse was fluttering and almost imperceptible, the legs and ears were cold, the nostrils were dilated, the breath was very fœtid, the respiration was hurried and very difficult, and the animal seemed about to succumb.

The swelling in the region of the head and face more especially affected the cheeks, the body, and base of the tongue, and the tissues of the submaxillary, parotid and laryngeal regions.

As there was no prospect of recovery, the animal was shot.

INTRA-TRACHEAL INJECTION.

BY W. PENHALE, M.R.C.V.S., BARNSTAPLE.

In a translation from the *Annales de Médecine Vétérinaire*, which appeared in *The Veterinarian* for July, 1883, and again in a leader in the January number, 1884, the value of introducing medicines into the system through the bronchial mucous mem-

brane, by inter-tracheal injection, is advocated. It is quite possible this system of administering medicaments may have become very general among the veterinary practitioners of England, but as yet the success or non-success of its adoption has not been published, except by Mr. Hutton in the last issue of the VETERINARY JOURNAL, and nothing has been attempted in this way in human medicine beyond insufflation of the larynx with impalpable powders in cases of Diphtheria. As inter-tracheal injection is advocated by such high authority as M. Levi and the editors of *The Veterinarian*, there must be a good chance of its success, and some probability of its coming into favour.

Like Mr. Hutton, my observations of its utility are confined but to one malady, and I must further confess to very limited trials. But the malady is no trivial one (indeed, it often baffles all other modes of treatment), beyond which, the trials were a very decided success, and the results are borne out by a brother practitioner. Therefore, I am induced to rush into print with what may be considered a very meagre and partially developed report. I was first induced to test this novel method of administering medicine by the recommendation of my friend, Mr. C. Parsons, of Launceston, who had treated calves which were suffering badly from the presence of *Strongyli micruri* in the windpipe and bronchial tubes. He punctured the trachea of each calf with the needle of an ordinary hypodermic syringe, and injected Ol. tereb ʒii., Acid carbol. M. xx., Tr. opii ʒi. Notwithstanding the large, and, considered in the light of other days, alarming quantity of these drugs in the windpipe, all of these calves made a rapid and complete recovery without further trouble.

Acting on this suggestion, I have treated a large number of calves in the same way, and in almost every case with success; instead of Tr. opii, however, I have substituted chloroform ʒss., which I know to be a deadly parasiticide. The operation is very simple and easy to perform. I have procured a large syringe for the purpose from Messrs. Arnold and Sons, the needle of which I introduce about midway down the cervical portion of the trachea, without regard to an inter-annular space,

and inject the fluid slowly. The exhalation of the turpentine can at once be detected at the nostril; the animal appears to suffer no inconvenience beyond a slight cough. So far, I have not found it necessary to repeat the operation, although some of my cases were apparently suffering from advanced Broncho-pneumonia. Two, in particular, were suffering most acutely—grunting with that peculiar harsh, distressing sound so characteristic of the latter stages of the disease, at every expiration, and one, which I thought could not live but a few hours, had oral breathing as though suffering from oxygen starvation—doubtless due to plugging of the bronchial tubes by strongyles. Both had violent and spasmodic coughs, and were foaming at the mouth. I injected the worst of the two cases first; the operation caused a perceptible and immediate relief, the respirations per minute being lowered at once, and in a few hours were considerably diminished, and the sound not so distressing. So marked was this change, that it was noticed by the attendant—by no means a keen observer. No. 2 was operated on in the same way; both made a complete recovery. No. 1 commenced to feed on the third day after the injection, by which time nothing could be seen amiss with No. 2, beyond a slight cough. No. 1 continued to grunt a little for a week. I regret not trying this treatment some time earlier in the autumn, when opportunities offered for experimenting on lambs suffering from an analogous disease, and for which, I believe, it would be equally efficacious.

Already I feel convinced that we shall not have so much difficulty in dealing with these two maladies in the future as we have had in the past. It is pretty well known to country practitioners how deadly are the ravages of these strongyles when the disease which they induce is allowed to go unchecked; as many as thirty or forty per cent. of lambs will die, to say nothing of loss of condition, if no treatment is adopted; and I have known eight calves perish out of a herd of twelve, from the same cause. The disease, too, is pretty widely distributed, being general over England in the case of calves, and in certain seasons the counties of Norfolk, Lincolnshire, Cambridgeshire, Cornwall, Devonshire, and some parts of Somerset, suffer greatly

from the *Strongylus filaria* in the lamb. In a small practice, in the year 1875, I attended upwards of a thousand lambs suffering from this complaint. So shrouded in mystery is the life-history of these two parasites, that helminthologists are able to tells us but little as to whether they are taken up with food or water, or both, and so gain ingress to the bronchi of the sufferers. But this we do know, that it is ruinous to pasture either lambs or calves in old pastures after adult stock. The disease in calves, I believe, might be prevented every year, by keeping the animals rigidly in young grasses, and on high ground. Paradoxical though it may appear, hill farms suffer most from the *S. filaria*. But it must be confessed that our friends the agriculturists do not, as a rule, favour prophylactic measures, and are not victims to hygiene. Their usual plan is to allow the animals to contract the disease in the pastures, and then, for a remedy, turn them into either turnips or rape. Nothing could be more fallacious than this treatment, for the poor animals are already debilitated by disease, and now still more so, by not eating a kind of food to which they do not take instinctively. So, what with starvation, and the constant irritation of the strongyles, they fall an easy prey to Bronchitis and Pneumonia. It is to this stage the aid of the veterinarian is usually sought after. Hitherto, for treatment we have had recourse, and with a great deal of success, to fumigations, expectorants, and the exhibition of turpentine through the mouth; but now a still greater success will attend our efforts by adopting M. Levi's plan of administering medicine by intra-tracheal injection.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from page* 10.)

THE *ciliary ligament* is the bond of union between the external and middle tunics of the eye, and serves to connect the cornea and schlerotic at their line of junction with the iris, and outer layer of the choroid. The canal of Fontana is known to exist in the ligament; it is a vascular canal. The iris forms the curtain or septum between the anterior and posterior

chambers; the opening in its centre is termed the pupil, the shape of which is horizontally elliptical; the margins of the iris are obtruded upon by several small, pendulous bodies, termed the *corpora nigra*. The front surface of the iris points to the cornea, and the posterior towards the lens. The muscular arrangement is composed of two layers: the anterior one consists of radiating fibres, which converge from the circumference towards the centre, and produce an enlargement of the opening; the posterior, or circular, surrounds the pupil like a sphincter muscle, and produces contraction of the pupil. The posterior surface of the iris is of a deep purple tint, thence termed *uvea*, from its resemblance in colour to a ripe grape.

The ciliary processes consist of a number of triangular folds, formed by the plaiting of the middle and internal layer of the choroid; they are covered with a thick layer of pigmentum nigrum; when this is washed off the processes are rather white. The next tunic is the *retina*. It is composed of three layers—external, or Jacob's membrane, middle or nervous, and the internal or vascular membrane. Jacob's, when examined by the microscope, is found to be composed of cells having a tenellated arrangement; it is said to be a *serous* membrane. The *nervous* membrane is the expansion of the optic nerve; it envelopes the vitreous humour. The *vascular* membrane consists of the ramifications of the *arteria centralis retinæ* and its vein; it is a branch of the ophthalmic artery. The zonula ciliaris is a thin, vascular layer which connects the anterior margin of the retina with the anterior surface of the lens near to its circumference; the under surface of the zonula is in contact with the *hyaloid membrane*, and around the lens forms the anterior, fluted wall of the canal of Petit.

The *humours*.—The aqueous is situated in the anterior and posterior chambers; the anterior chamber is the space intervening between the iris and pupil behind. The chambers are lined by a thin layer, which is the secreting membrane of the aqueous humour; it is a weak, albuminous fluid, with an alkaline reaction; its sp. gr. is little more than water. The posterior chamber is the space bounded by the posterior surface of the iris and pupil in front, and by the ciliary processes, zonula ciliaris, and lens behind.

The vitreous humour forms the greater bulk of the globe of the eye. It is an albuminous and very transparent fluid, enclosed in a membrane of extreme delicacy—the hyaloid. From the inner surface of this membrane many thin lamellæ are pointed inwards, and form compartments or cells in which the fluid is contained. A tubular canal has been found in the centre of the vitreous humour, through which a minute artery is conducted from the arteria centralis retinæ to the capsule of the lens. The crystalline humour or lens is situated immediately behind the papillary opening, and is surrounded by the ciliary processes. It is more convex on its posterior surface than on the anterior; it is imbedded in the anterior part of the vitreous humour, separated from it by the hyaloid membrane. It is invested by a transparent, elastic membrane, the capsule of the lens, which contains a small quantity of fluid, called *liquor Morgagni*, and is retained in its place by the attachment of the zonula ciliaris. The lens consists of concentric layers, of which the outer are soft, the next firmer, and the central form a hardened nucleus. These layers are best demonstrated by boiling. The appendages of the eye are placed in close approximation to the globe; they are divided into external and internal. The upper and lower lids unite and form the canthi; the lids possess a muscular power of closing and opening: they can shut out all offending agents, they are the regulators of the rays of light. The muscles of the lid are *not* voluntary; the superior lid is more strongly developed than the inferior, it has more motion also. From the outer surface of the lid are growing long hairs; they must be intended for some specific purpose, and they doubtless are for the purpose of protecting the organ from insects, hay-seeds, etc. Each one conveys sensation. They were, by the late Professor Coleman, called *watch-dogs* of the eye; they ought never to be cut away. These hairs are also found on the under lid, but not so numerous. The range of hairs upon the upper lid are performing the office of shrouding the eye from the rays of light coming from above, which are more powerful than those coming from below. The other appendages are the eyelashes, the caruncula lachrymalis and the lachrymal apparatus, together with the conjunctiva, Meibomian glands, cartilages (the horse

has no tarsal cartilages), cellular membranes, arteries, veins, nerves, absorbents. The tegumentary cellular tissue of the lids is very loose, and is remarkable for the absence of fatty matter; it is very liable to serous infiltration. The Meibomian glands secrete a mucus to prevent impediment in opening the lids. The conjunctiva is the mucous membrane of the eye. It is found to cover the whole of the anterior surface, and is then reflected upon the lids, so as to form their internal layer to the cartilago-nictitans, and passes down to give a lining to the *ductus ad nasum.* It is most vascular where it lines the lids; where it covers the cornea it is very thin and closely adherent, and no vessels are seen there in the absence of inflammation. It differs from mucous membranes in being transparent. The *caruncula lachrymalis* is a small tubercle situated on the inner canthus; it is principally covered by common integument, a very small portion being covered by the conjunctiva. It is intended for the purpose of directing the tears into the puncta lachrymalia. In man it is said to be glandular.

The lachrymal gland is situated under the orbital arch; to gain a view of it the removal of the bone is necessary; it is pale in colour, and is of an irregular shape; it is a conglomerate gland, very much resembling externally the salivary glands; its office is to secrete the tears, which are conveyed by its ducts upon the conjunctiva, where they become diffused in two ways, namely, by their own gravity, and also by the motion of the lids. The tears are saline, and possess irritating properties often observed in Ophthalmia.

The cartilago-nictitans is a concavo-convex body lodged behind the inner canthus between the globe and side of the orbit, and covered by conjunctiva, and is attenuated on its anterior extremity; it is embedded in adipose substance, and its action is principally mechanical. The late surgeon Liston informed me, when examining me for my diploma, that he had discovered two small muscles which aided in performing its movements; the names of them I don't recollect. Its use is to dislodge anything foreign on the eye. Puncta lachrymalia are two small openings piercing the inward margins of the two lids near the root of the caruncula, the superior being smaller than

the inferior. The ductus ad nasum is the canal intended for the passage of the tears from the eye to the nose; it passes through the lachrymal bone, between it and the anterior turbinated bone, to the cuticular surface of the inner and lower part of the nostril, its terminating upon cuticular membrane is to prevent the tears from excoriating the mucous surface. In the human subject this duct is sometimes so affected that surgeons are in the habit of cutting into it, and inserting a silver pin so as to keep the canal open; I have known pins to be worn for a long period previous to recovery. The arteries which supply the globe of the eye are the ophthalmic and the arteria centralis retinæ. The appendages are supplied by the internal maxillary. These several parts are well taken care of by the quantity of adipose matter found in the orbital cavity; the case itself being lined by a dense membrane, said to be a continuation of the dura mater. The fatty substance being semi-fluid during life admits of the various movements which the eyes of the horse are called upon to perform, and it is the absence of this fatty substance, through absorption, which gives to young animals the appearance of old age.

The globe is regarded as an optical instrument of very complex construction, beautifully arranged and adapted, into which the rays of light are received, and by the medium of which agent the horse is able to take cognisance of the form, size, colour, and position of bodies that transmit or reflect it. The globe is placed in the cavity of the orbit most laterally and obliquely, which cavity is formed of eight bones—the two cavities are formed of fourteen bones—four form the outer, the portal, malar, unguis, and squamous-temporal bones (in the human subject the portal does not contribute to its formation), the inner part is formed by the sphenoid, athmoid, palatine, and superior maxilla, (the cavity of the orbit in the human subject has no orb. fossa) it is clothed with a shell of bone.

The eyeball is placed nearer to the frontal than to the temporal side. The globe is suspended in front of the eyelids, laterally and posteriorly, by its muscles, and by the optic nerve, which, together with its vessels, are enveloped in fat. The size of the globe differs in different individuals, some large horses

having small eyes, and small horses possess large eyes, and so forth. Its figure is said to be a compound of two spheres of different diameters, united in front by an elliptical line. Its axis points to a horizontal line, more outward than forward, and more forward than downward; this line intersects another horizontal line drawn directly outward at an angle of 70°, and one drawn directly outward at about 20°, the inclination downward, however, will vary with the position of the head.

The axis of the globe is not exactly that of the orbit, though it likewise takes a direction more outward than forward, for in the ordinary position of the head it is perfectly horizontal, and in consequence of the prominence of the eye next the temple, inclines more forward than the orbital axis considerably, and especially in the lateral direction. The eyes, placed as they are in the head, command nearly a whole sphere of vision; thus the horse is amply provided with visual means for seeking food and avoiding danger. I must not omit to state that I am indebted to notes taken of Professor Spooner's lectures; to Wilson's "Vademecum," and Percival's "Anatomy," for refreshing my memory so as to enable me to be precise in the anatomical description of the eye and its appendages.

(To be continued.)

BURSATTI: ITS CLINICAL CHARACTERISTICS.

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., INDIA.

(Continued from page 29.)

THERE is a department in the history of Bursatti about which, we believe, many of our readers in England may have never adequately heard, and about which not a few of them, anticipating a visit to India, may be the better for knowing something. We refer to what is called the clinical characteristics of that disease. We have contributed facts of clinical importance which contain information that may be of interest in connection with the pathology of Bursatti, advanced in preceding articles, for the better development of that important science, veterinary pathology and therapeutics, as applied especially to India. In the days to which we allude, an accurate portrayal of clinical

facts was a thing not to be indulged in every day; hence we were fain to content ourselves with ordinary fare—the consideration of mere general symptoms and of their treatment. This was by no means a complete study, or such as would suit the standard of modern thought and of present modes of inquiry. The throwing in of the accessory sciences in our inquiry into the nature of disease forms a notable help, in the present day, to the work carried on in clinical pathology.

The system of inquiry conducted here has been more on the principles of general pathology, than as a speciality, and those conducting it may be deemed rather as *comparative* pathologists than as specialists.

From 1838 to 1851 numerous essays, papers, and contributions were forthcoming on this subject of Bursatti from different sources, but especially those which came from the pens of army veterinarians serving at that time in India; and as numerous were the theories then propounded with regard to its exact nature. But it was not until 1873 that Spooner Hart, of Calcutta, an enthusiastic veterinarian and accurate observer, published his essay in a series of excellent papers to the *Veterinarian*, far in advance of all preceding descriptions, and possessing that touch of critical appreciation which alone distinguishes a practical surgeon and clinical observer. But in recent years the opinion has been gradually emerging more and more into prominence that the clinical characteristics of disease have not the value as an element of inquiry which many would assign to them—that they are not, singly, the be-all and end-all of our pathological problems. Clinical knowledge, whether viewed as an art or a calling, should ever be agreeably associated with the other departments that are interesting in science and pleasurable in inquiry. The only drawback of the system above advocated is that no durable record of the opinions of different veterinary surgeons in India are made, only a few contributions having been published in our periodicals up to the present which have any scientific bearing on the pathology of this affection. But this difficulty can be easily overcome by making public the combined views and experiences of veterinarians throughout the country who have had opportunities of studying this disease under

varied conditions of climate, treatment in adoption, etc., which may each and all exercise an influence over its course and progress and termination in different cases.

We propose in this connection chiefly to devote our attention to the consideration of the more salient particulars concerning the clinical characteristics of this disease, which, though discusssd nearly fifty years ago, are by no means an already completed work in pathology, but requiring greatly to be extended yet.

The local phenomena of the disease have for many years been a subject of special observation by veterinarians in India, yet it must be admitted that, after all, little that is definite and indisputable has been ascertained regarding what has ever been the dark side of the question, namely, the nature, causes, and classification of these phenomena. It is open for us to hope that the increased and more systematic study of pathology and its cognate sciences, may in course of time lay bare to us the benefits of those extensive observations that have preceded others of our own time. In the present consideration it is not intended to enter into the various speculations that have been current relative to this disease, but rather to take a survey of certain clinical manifestations as exhibited in some of the more important of former contributions. It is not, however, what this or that one says of the disease, but the unerring testimony of combined experince as demonstrated in the opinions of veterinary surgeons who have actually served in India, which decides its character, but a good deal may be added to that testimony, some of the more important of which, so far as they relate to the clinical pathology of this disease, we propose to bring before the notice of our readers, by the side of general experience.

So much has already been written by way of contribution to our knowledge of this disease that, important as the subject is, it may be considered to have received already a fair share of attention; but not so is the clinical aspect of it, however, which cannot, perhaps, be dwelt upon too much, if we would stimulate a practical inquiry into its pathology and causation. There is much in favour of this system of joint inquiry, which, while showing how we are all indebted to some predecessor, foreshadows a great and salutary improvement in the literature of

Bursatti, which finds its duplicate in human pathology, as we shall here endeavour to prove by recourse to comparison between the labours of human and veterinary practitioners—which may tend to counteract the errors which time-fostered notions and the views of individual experience assuredly entail. Then,—

In regard to the characteristics of Bursatti sores, Mr. Spooner Hart, in his excellent communication on the subject, on page 533 of the *Veterinarian*, describes "an indurated base extending to a depth of half an inch, or an inch." Mr. J. Burke, formerly of the Stud Department, now professor of physiology at the Lahore Veterinary School, says: "The skin surrounding the affected part, as also the base of the sore, are sometimes thickened to the extent of a couple of inches, and which are found studded with nodules characteristic of the disease (Bursatti). This thickening may sometimes extend even to the subcutaneous areolar tissue, and present a dirty, leaden hue on section." Inspecting Veterinary Surgeon George A. Oliphant, in charge of Hapur stud, now Principal Veterinary Surgeon in India, writes*: "More frequently, however, from rubbing or biting—for the sore is particularly itchy—the crown of the ulcer becomes violently detached, leaving a moist, irritable sore, *the base of which speedily becomes indurated*."

Dr. T. W. Cooke,† formerly surgeon to the Cancer Hospital, London, writes: "I have had so many opportunities of watching growths upon the lips and tongue, and other parts, supposed to be Cancer, but which had not this especial symptom, that I feel myself warranted in giving a very strong opinion *that without an indurated base there is no Epithelial Cancer*."

To take another feature of this disease.

Mr. Spooner Hart‡, writing on Bursatti, remarks: "Tubercles are formed prior to the rainy season, and remain *in statu quo* until about the month of May, when the skin covering them gives way, forming large ulcers, which, if allowed to go on unchecked, as the majority of them are until the rains are well set in, are aggravated by the almost constant downfall of rain, and

* Veterinary Journal, July, 1880, p. 18.
† "On Cancer: Its Allies and Counterfeits," p. 41.
‡ *Veterinarian*, 1873, p. 18.

hence the popular error that Bursatti attacks subjects only in the rainy season." We have already shown that the presence of tubercle-like nodules in Bursatti sores is diagnostic.

Dr. T. W. Cooke, on the subject of Cancer in man, on page 93, writes: "In many cases the incisions made for the purpose of removing the diseased mass have scarcely healed before '*tubercles*' have appeared around the cicatrix, or the wound itself has taken on the diseased action." Dr. Green* says: "The cells may be so closely packed as ultimately to become hard and dry like those of nails and hair, and the globes are then of a brownish yellow colour and of a firm consistence. These globes are often large enough to be readily visible to the naked eye." Billroth† considers the presence of nodules in the skin, *when numerous and well characterised, diagnostic* of one variety of Cancer he has specially studied.

Another important feature of Bursatti is the presence in the sores of pain or irritation, felt only at different intervals. And in regard to this point Veterinary Surgeon Hart‡ writes: "Bursatti sites, though healed, are liable at any tine to become irritable and to be gnawed by the horse; this act showing beyond dispute that some irritative action is going on." This pain is certainly considered very characteristic also of human Cancer. But, as Dr. Cooke observes, "It is not constant, or the patient could not live, but comes on at uncertain intervals, and is so startling and severe that it makes the sufferer jump from her chair or couch, not infrequently with a sharp cry of anguish." Could but our patients speak, they might tell us something of the pain in Bursatti! Their manners, however, too often indicate the nature of their suffering. The manifestations of pain now and then evinced are such as to awaken in our minds a deep sympathy for our dumb four-footed friends, who, denied by nature the gift of speech, have yet such delicate ways of making known their complaints, as to rival the more luminous medium of words.

(*To be continued.*)

* Epithelioma: "Pathology and Morbid Anatomy," p. 93.
† "Pathological Anatomy," by Wilx and Moxon, 2nd Ed., p. 656.
‡ *Veterinarian*, 1873, p. 18.

Editorial.

THE INSPECTION OF MEAT.

Among the sanitary necessities which our civilisation entails, the inspection of the flesh of animals intended for the food of mankind should take a foremost place; indeed, it has long been recognised in other European countries than our own that healthy meat is of the first importance in regard to the public health, and, acting upon this belief, legislative measures have been framed and rigidly enforced, and efficient precautions adopted in the form of public abattoirs—where animals could be examined by competent men before slaughter, and their carcases after—and inspections of butchers' stalls adopted. In this country we are far behind the Continental Governments in everything pertaining to the protection of the public from the issue of diseased or improper meat. There are, it may be said, no public slaughter-houses where the healthiness of the animals killed in them is duly certified to; the few there are being under no supervision in this respect, as they have been erected solely with the object of convenience in slaughtering and the issue of the carcases to local butchers' shops. We can testify, by what we have witnessed in the Edinburgh abattoir (where we have seen carcases dressed for issue to butchers, affected with generalised Tuberculosis, large internal abscesses, etc.), that the sound or unsound condition of the flesh of the creatures killed in them is not a matter for consideration. And if it be so in these public establishments, we may rest assured that those horrid abominations, the private slaughter-houses, are no better, but perhaps worse; as, while decency might impose some check upon the admission of animals showing external indications of serious disease to the public abattoirs, there is no such restraint operating in the case of the private butchery, to which anything in the form of a living ox, sheep, or pig may be introduced, and from which anything in the shape of a carcase—dressed, carved, washed, and powdered, to mask traces of disease—may be issued.

Again, with regard to diseased animals which died or were killed to prevent their dying naturally, either in dairies or on farms, we may ask what becomes of their flesh. We are inclined to believe that few of them are buried, and, from inquiries made at many knackeries, it is only too probable that yet fewer find their way there. The presumption is therefore strong that they are bought by a low class of dealer or butcher for a small sum, dressed, and sent to market as food for poor people.

That all this traffic in diseased or bad meat can be carried on with impunity is a fact patent to all who have any acquaintance with the meat trade, or who, like veterinary surgeons, are acquainted with the ultimate destination of disease-stricken cattle, sheep, or pigs. Meat inspection there may be, but it can scarcely be called anything more than a farce or a sham. The inspectors have had no particular training, and generally manifest no special aptitude for their work, being either medical men, broken-down policemen, bankrupt butchers, or men of any other calling, who cannot, as a rule, know anything of diseased flesh, and may not

even be able to tell when it is putrid—as was shown in a trial in one of the London police-courts recently, when one medical gentleman swore that a quantity of meat was putrid, while another took his oath that it was perfectly fresh.

The consequence is, as might be expected, that diseased flesh is rarely detected either in the slaughter-house or on the meat-stall, while it not unfrequently happens that gross mistakes are made, and innocent people convicted, through the incapacity of the inspectors. It is evident that meat inspectors should be competent persons, not only able to pronounce whether flesh is putrid or fresh, diseased or healthy, good or bad, but also the kind of animal it may have been derived from, the condition it may have been in before it was slaughtered, whether it had been treated with drugs for some disease, and the probable disease with which it was affected. He should also be a good comparative pathologist, well acquainted with morbid anatomy and animal entozoa, and well instructed in the use of the microscope.

Some discussion has arisen lately in the medical journals as to whether medical men or veterinary surgeons are best fitted for the duties of meat inspectors, and, as might have been expected, the former consider themselves best qualified, though on what grounds they do not venture to enlighten us. But it certainly cannot be allowed that they possess any special qualifications from the training they may have received while studying medicine, and subsequently practising medicine or surgery among their own species cannot have endowed them with that particular knowledge which a meat inspector should have. Their pretensions cannot, therefore, be said to be well-established, and especially are they inadmissible when we know—what many of them are ready to confess—that their ignorance of animal diseases is so great as to be almost proverbial.

This is so well recognised on the Continent, that medical men are never employed on this duty, nor are their opinions sought when any questions arise as to the issue of certain flesh for food. All meat and abattoir inspection is entrusted to veterinary surgeons, whose special training and knowledge render them by far the most suitable persons to undertake such a difficult and responsible duty; and, as is well known, it is veterinarians who have made this subject particularly their own by their investigations into the diseases of animals which render the flesh or milk of these dangerous to mankind. In this direction the names of Gerlach, Haubner, Semmer, Bouley, Chauveau, Leisering, Toussaint, and a host of other members of the veterinary profession, will occur to the minds of our readers.

What this country urgently requires are public abattoirs in every town and city, with well-trained veterinarians to preside over them, so as to guarantee the public against the dangers arising from unsound flesh; as well as veterinary inspectors to ensure purchasers of meat that that which they buy in the shops, and which may have found its way there from other sources than the abattoirs, is suitable for human consumption.

BURSÆ MUCOSÆ.

BY PROFESSOR F. EICHBAUM, OF GIESSEN.

(*Continued from page* 36.)

Before we speak upon the methods applied in these researches, we may remark that we can absolutely confirm Tillmanns'* views respecting the use of nitrate of silver, viz., that this reagent alone is not sufficient to demonstrate positively the presence or absence of an endothelial layer on the membranes under our consideration. The reagent is undoubtedly of great value in studying the serous membranes and the interior of vessels. However, with synovial membranes it gives the most intricate results; which, according to Schweigger-Seidal and Tillmanns, is produced by the union of the silver with the albumen of the tissue, forming a layer of albuminate of silver (Silberalbuminathäutchen). The fact that these membranes are covered with synovia, the superficial tissues become soaked with it, which makes it difficult to remove; even the most careful washing does not completely prevent this layer (skin) forming when the silver solution is added to the preparation. This undoubtedly is the cause of the divergent views respecting this question. Although bursæ mucosæ and tender sheaths only contain a small quantity of synovia under normal conditions, still it seems to be sufficient to produce this artificial layer or skin, which Tillmanns, in his work upon the "Uncertainty of the Silver Method of Studying the Histology of Joints," has so strikingly pointed out.

When specimens are successfully prepared we find—as I have shown more closely below—clear spaces bounded by delicate brown or black lines, and in their centre is a large round nucleus, so that these structures are scarcely distinguishable from the endothelium of other serous membranes. When the synovia is not sufficiently removed from the membrane, these boundary lines appear broader and more extended. They widen at the expense of the clear spaces, and finally these spaces and the whole cellular arrangement of the specimen become a uniform brown colour; and if hæmatoxylin be added to the preparation, the dark nuclei may be seen, if the silver-synovial membrane or albuminate of silver skin is not too thick. It not unfrequently happens that this appearance is mixed, and assumes a striped form in the same preparation, *e.g.*, stripes of various widths, when distinct silver boundaries may be seen; then a brown-coloured one, where the silver has mingled with the albumen, and then the so-called keratoid appearance. Such specimens are undoubtedly due to the tissue getting into folds during its preparation, and the silver solution settling in the deeper parts, and as a consequence, staining them more deeply. In other cases this silver-albuminate covering or skin is not so complete; it may appear in spots only, with undefined borders, in which case they resemble nuclei, or it may resemble keratoid tissue having irregular stellate spaces united by projections. If this silver albuminate covering is removed by mechanical or chemical means, the normal structure of the tissue beneath becomes visible. We may remark here that this covering disappears if the preparation is simply allowed to stand for a time in a dark place. Besides these we may often find similar formations to those described by Tillmanns (l.c., Fig. 14) in the subendothelial lymph vessels, and it is probable that this additional brown colour is due to the lymphatic vessels or the endothelial cells absorbing the silver solution.

Although we came to these conclusions with regard to the use of silver nitrate in studying these structures, still I could not absolutely agree with Tillmanns' views, because it occurred to me that it was necessary to try some other staining reagent in conjunction with it. Therefore I tried staining the

* Virchow's Archiv, Band 67, s. 398.

nuclei of specimens already treated with nitrate of silver; and also hardening the membranes in alcohol, and then applying chloride of gold and osmic acid. The course adopted was as follows: The membranes in question were taken from fresh subjects—sometimes immediately after death. Most of them were placed in a solution of bichromate of potash, and then in alcohol, until they were hard enough to be cut; others, after Ranvier's* method, were carefully removed from the body and stretched over a piece of cork, washed, and rinsed in distilled water, and then treated with a ½-per-cent. solution of $AgNO_3$, which after 1½ to 2 minutes was again removed. This method, however, has the disadvantage of splitting the superficial layer of the membrane (which is impregnated with the silver solution) when removing the tissue from the cork; therefore the silver solution was applied to the tissue whilst *in situ*. The bursæ or tendon sheaths, when first opened, were carefully washed out with distilled water, and then treated with the silver solution; and when the surface was equally coloured brown, the bursa was taken out with its attached fascia tendon or muscle, etc., and placed in absolute alcohol and put in a dark place. After it had hardened, it could then be easily prepared for examination by colouring it with hæmatoxylin, and placing it in glycerine without breaking the continuity of its superficial surface. If the layer of albuminate of silver formed, the preparation was opaque, and its structure made out with difficulty, or concealed altogether. It was then treated as Tillmanns suggests (l.c., s. 407), with a concentrated solution of hyposulphate of soda, which causes this covering to disappear in about forty to forty-five minutes; the normal structure of the preparation can then be clearly studied. This method has proved itself to be so successful, that I have only resorted to gold chloride as advised by Soubbotine (l.c., s. 542) or a ½-per-cent. solution of osmic acid in order to ratify the conclusions obtained by nitrate of silver and hæmatoxylin. None but quite fresh specimens are of any value when studying the structures in question—only those that have been taken from the body forty-eight, or at most sixty, hours after death will give the results detailed below—especially with regard to the endothelial lining—which is completely removed by maceration, and only partially present when the tissue is prepared after the time specified.

The tendon-sheaths were the structures first examined in these researches, because their organisation is completed early in fœtal life. Those of the extensor and flexor tendons of the extremities were chosen, because they possess a broad vascular mesotenon, and their walls are usually easily separated from the surrounding retinaculum, thus leaving only the special tissue remaining for inspection.

Longitudinal and transverse sections of the sheath of the extensor pedis presented an outer layer—varying in thickness—composed of firm, rigid, interlacing fibrous tissue, resembling a transverse section of retinaculum. The internal surface of this layer is united to the mucous layer (synovialis or synovial intima) sometimes without any sharp line of demarkation; at others, they are joined by a loose, formless, connective tissue, varying in thickness from 0·20-0·4 mm. in different places, and supporting the larger branches of blood-vessels; it also passes up between the two synovial layers forming the mesotenon, and unites them together (subsynovial layer). This, as well as the synovial intima, are formed by bundles of fibrous tissue intertwined irregularly together in a similar manner to the outer layer. Towards the internal part of the synovial intima—which is frequently in longitudinal folds—the separate bundles of fibrous tissue pass into a delicate, fibrous, closely constructed stratum, interweaved with a network of fine, wavy, elastic fibres; it also supports the smaller branches of blood and

* "Technisches Lehrbuch der Histologie, uberartzt von Nicati und Wyss" (s. 352).

lymph-vessels. The blood-vessels vary in size from 0·024-0·14 mm., and their course and divisions are most easily seen in surface (horizontal) sections. They ramify in the form of a large-meshed network in the most superficial layer of the synovial intima, immediately under the endothelial layer; in an analogous manner—as Tillmanns' researches have shown—to those in serous membranes, *i.e.*, they are always situated above the lymph-vessels, and give off branches into the papillæ, which can usually be traced to their extreme end. In sections which have been cut obliquely to the surface, and stained with carmine, a tolerably regular layer of round granular nuclei from 0·006-0·009 mm. can be detected on the internal surface of the last-mentioned stratum, which under similar circumstances can also be seen on that portion of the intima covering the tendon. This signifies the endothelial layer on the internal surface.

In order to study the endothelial layer, surface (horizontal) sections should be made and treated by one of the above methods before being examined. If a thin section of the mesotenon or wall of a sheath be stained with hæmatoxylin, a layer of round or oval granular nuclei are easily seen on the surface of a fibrillated connective tissue. These are distinguishable from the nuclei mentioned above by their form and arrangement. Such preparations offer a very similar picture to the mesentery of a young animal or an advanced embryo when treated with the same colouring agent; except that, in this case, the underlying fibrous strata contain more cells and nuclei. When these sheaths are more closely studied, it will be seen that the vessels lie beneath these round nuclei. The preparations are still more instructive if they are first treated with a $\frac{1}{2}$-per-cent. solution of silver nitrate, and then stained with hæmatoxylin. In fortunate specimens prepared in this way, we find a fine brown or black network (silver line) surrounding irregular polygonal or circular-shaped spaces—or rather separating these from each other. They vary in size: their longitudinal diameter being usually between 0·015-0·018 mm., and the width from 0·006-0·015 mm. In each we find a relatively large round or oval, very granular nucleus from 0·006-0·009 mm. in diameter, containing several nucleoli. The spaces which are mapped out by these lines undoubtedly correspond to the endothelial cells, which form a continuous covering on the internal surface of the synovial intima and the surface of the tendon.

If these cells are compared with those of serous membranes, especially those on the peritoneum of horses, we find they resemble each other in size (length 0·024, breadth 0·018 mm.), although the dark boundary lines on the peritoneum appear to be more unequally undulating or wavy. This is caused, as we have already seen, by the albuminate precipitate being more extensive on the synovial membranes, and this appearance is most strikingly seen on the periphery and deeper-lying parts of the endothelium. This silver line may often be as delicate in tendon sheaths and subtendinous mucous bursæ as in serous membranes, although the contrary is the rule. Further, where two lines meet, we often find they appear thickened: this is due to the cells pressing against or overlapping each other, which produces an irregularity in the width of the dark lines. When these lines are regular, the cells are more or less circular, and the peripheral brown part of the cells are in the form of rings surrounding clear spaces, each containing a nucleus in its centre. In other specimens we may find these appearances mixed. If, however, the preparation is treated with hyposulphate of soda, the albuminate of silver covering is removed, and allows the regularly arranged, blue-coloured nuclei to come into view.

The proof of the existence of a cellular endothelial layer is demonstrated by the regularity of the nuclei, and by the fact that the above-mentioned network of dark lines, with the nuclei within them, is easily removed by

mechanical means. If a first preparation, or, better still, one that has been lying in glycerine for twenty-four hours, be brushed over with a pencil, this cellular covering is easily removed, and if such a preparation be examined microscopically, it will be found that, in some places, it has lost this cellular covering, whilst at others it is left intact, or raised up and displaced. Again, it is not difficult to obtain this layer for examination by scraping the internal surface of the synovial intima. In such preparations one often sees isolated endothelial cells and fat. The former are flattened, round, or oval-shaped cells, which sometimes have irregular indented processes, and their large nuclei surrounded by a small mantle of protoplasm. The latter presents a transparent finely granulated ground substance, with nuclei—similar to those described — evenly distributed amongst it. Similar results are obtained by subjecting the synovial intima to gold chloride. The surface of such preparations presents a layer of round or oval cells, with sharply defined contours and large violet nuclei. The cells lie close together, and sometimes their edges overlap each other, which gives the appearance of a covering composed of more than one layer of cells. The gold chloride more particularly demonstrates the presence of the vessels under the endothelium; I have never found them between the endothelial cells, or naked on the surface of the synovial membrane.

The endothelium lining the sheaths of tendons is never composed of more than a single layer of cells, and we may anticipate the same is the case in mucous bursæ. They are also found covering the papillæ, which are thread-like, often branched processes, from the synovial intima; they present great variations in presence, form, and arrangement. They are found on the walls as well as the mesotenon; sometimes isolated, at others in groups. They usually arise from a small fold of the synovialis by a broad base, then alternately broader, or become smaller in their course, and frequently terminate with a club-shaped extremity. Further, a single papilla may frequently be observed branched out into a number of clubs or egg-shaped divisions, joined together at a common axis, and these may send out similar shaped processes from their lateral surfaces. These daughter or secondary papillæ probably arise from a puckering of the endothelium, which afterwards develops into a side branch. The length of a single papilla varies from 0·20-3·00 mm., and their diameter between 0·06-0·24 mm.

When more closely examined, we find a number of nuclei on their surface, situated at tolerably even distances from each other, bordered by a silver line. If macerated in a weak (2-3 p. mll.) solution of chromate of potash and shaken in a bottle of fluid, or pencilled, this cell-covering is removed, and the processes remain in contact with the synovial intima; they may, however, be distinguished from the intima by the delicacy of the fibres composing them, as well as the presence of a finely nucleated substance between them, especially in their club-shaped ends. No difference can be recognised between the endothelium covering these papillæ and that on other parts of the tissue, although it is noteworthy that on several places of the papillæ the endothelium is wanting; this defect is probably the result of its preparation (maceration).

We will now give a short *résumé* of the results of our examination of the bursa under the peroneus muscle. The wall is composed of white and elastic connective-tissue fibres, lined on the inside by endothelial cells, which extend on both sides of the mesotenon, and passes from here to the surface of the tendon itself.

The sheath, therefore, is a closed sac with parietal and visceral layers continuous with each other. The same is the case with most of the tendon sheaths found in the body, *e.g.*, in the sheaths of the extensor metacarpus obliquus, flexors of the metacarpus, the perforans and perforatus at the

back of the carpus, and on the sheaths of the extensors pedis, os suffragius, as well as the flexor pedis accessorius of the hind limb. On the other hand, there are other sheaths where the endothelial lining is not continuous, viz. : when cartilage is inserted in the centre of the sheath, *e.g.*, the sheath of the perforans at the posterior part of the fetlock joint, which has its anterior wall lined by a synovial membrane for about 10 ctm. above the fetlock joint, passes downwards over the posterior part of the suspensory ligament, the sesamoid bones, the inferior sesamoid ligaments, and the joint capsule. The posterior wall is formed by the anterior surface of the perforatus, on whose lateral borders the synovial sheath is inserted, except where it passes the sesamoid bones. At this part the synovial sheath passes from the lateral borders of the sesamoid bones to the posterior surface of the perforatus tendon, so that it overlaps its borders and forms two lateral blind sacs, which come together at the centre of the back part of the tendon, and is called the bursa vaginalis of the perforatus tendon. It is also important to notice that at about the superior half of the sesamoid bones the perforatus gives off a flat tendinous process, which passes like a ring round the perforans, and that the synovial intima also here forms two diverticles, first by that portion of the membrane covering the suspensory ligament sending out a process to the above-mentioned circular band, and, secondly, by its reflection from this on to the perforans tendon.

Microscopically, we find this bursa vaginalis of the perforatus to possess an endothelial lining at all parts. At the lateral borders of the sesamoid bones, however, when this membrane passes into the anterior wall of the sheath through which the perforans passes, we find the endothelium disappears, and a zone about 0·75 mm. broad, which, if treated with nitrate of silver, presents superficially a homogeneous—deeper, a fibrous—appearance ; a ground substance of a brown colour, and tolerably closely-packed clear spaces of various sizes and shapes; some are round, others star-shaped, and as a rule about the size of ordinary endothelium, with fine, long processes which anastomose with similar branches from neighbouring cells, and altogether has the appearance of keratoid tissue. Between the spaces, islands of regular endothelium may be seen. If such a specimen be coloured with hæmatoxylin, each space will be found to contain an oblong—sometimes an elongated spindle-shaped dark blue nucleus, having a diameter of 0·008 mm. In a smaller zone the spaces are fewer in number, mostly in groups of two and four, and they present the same irregular shape and branched appearance. Hæmatoxylin also brings out the nuclei in them. This zone passes into the former without any marked boundary line. Similar clear oval spaces are also found, as in the above-mentioned zone ; they are sometimes irregularly distributed, at others arranged in rows; their long diameter is 0·012-0·015 mm., and mostly contain large oval nuclei, 0·009 mm. The body of the cell is homogeneous and transparent, and the distance from one cell to another is very variable. Two cells may frequently be found lying close together, and where they touch, their walls are flattened and often appear to be enclosed in the same capsule. If the silver layer is removed from the last-mentioned zone by hyposulphate of soda, the structure that remains is similar to that described above. The cells mostly lie between, but some are on the fibrous basement membrane, and differ from the endothelial cells by the fact that the latter, if not treated with a solution of silver, present no definite boundary lines, but look like a continuous, granular layer, in which nuclei are visible ; whereas the former have a transparent protoplasm with sharply-defined dark contours. This last-described zone is indistinguishable from connective-tissue cartilage, and no doubt the cells are cartilage cells.

(To be continued).

THE VETERINARY MUTUAL DEFENCE FUND.

DECEMBER 31ST, 1884. NINE MONTHS.

1884.	£	s.	d.
Balance in hand, March 11th, 1884..	1	15	6
,, bank ,, ,, ,,..	230	11	2
December 31, Amount of Subscription since March 11th, 1884 ..	41	0	3½
Bank Interest, June 23rd, 1884 ..	1	8	8
Bank Interest, December 24th, 1884	1	15	9
	£276	10	11½

1884.	£	s.	d.
July 28th, Dr. Matherson in Settlement of Claim against Mr. James Rowe (£5 of this advanced by Mr. Rowe, July 18th)	7	0	0
November 14th, Mr. J. L. Barling towards cost of trial	50	0	0
Wrappers for Circulars, etc. ..	0	5	8½
Stamps, Stationery, etc.	0	10	0
Secretary's Expenses	1	10	1
December 31st, Cash in Bank ..	198	9	9
Cash in hand	18	15	5
	£276	10	11½

Audited and found correct, JOHN B. WOLSTENHOLME.

January 14th, 1885. THOMAS GREAVES, *Hon. Treasurer.*

THE NATIONAL VETERINARY BENEVOLENT FUND.

DECEMBER 31ST, 1884. NINE MONTHS.

1884.	£	s.	d.
Balance in Bank, March 11th, 1884	52	14	8
December 31st, Mersey Dock Bonds	1900	0	0
Subscriptions since March 11th to December 31st, 1884	3	6	2½
Bank Interest, June 24th, 1884 ..	0	8	5
Bank Interest, December 24th, 1884	1	0	0
Dividend on £600 at 3⅞, March 11th, 1884	11	7	8
Miss Dick's Bequest, less tax ..	92	18	2
Dividend on £1300 at 4, and £600 at 3⅞	36	16	10
	£2008	11	11½

1884.	£	s.	d.
June 14th, Brown's orphans ..	10	0	0
June 16th, Mrs. Alfred Rushall and Family	5	0	0
September 20th, Mrs. S. F. Falding and Family	5	0	0
October 20th, Mrs. Alfred Rushall..	5	0	0
November 14th, Mrs. A. Rushall..	5	0	0
December 31st, Overpaid into Bank last settlement	3	6	2½
Cash in Mersey Docks	1900	0	0
Cash in Bank	165	5	9
	£2098	11	11½

Audited and found correct, JOHN B. WOLSTENHOLME.

January 14th, 1885. THOMAS GREAVES, *Hon. Treasurer.*

NATIONAL VETERINARY BENEVOLENT AND MUTUAL DEFENCE FUNDS.

List of Subscriptions from March 9th, 1884, to December 31st, 1884.

1884.		£	s.	d.
March 27	Mr. T. Secker.....	0	10	6
,, 28	,, T. Walley ...	1	1	0
April 3	,, F. H. Riddler	1	1	0
,, 3	,, T. D. Dollar	1	1	0
,, 5	,, E. Hodgkinson	0	10	6
,, 5	,, J. Lawson ...	1	1	0
,, 5	,, A. Lawson ...	1	1	0
,, 5	,, J. M. Broad...	4	4	0
,, 5	,, G. A. Banham	1	1	0
,, 5	,, M. J. Roberts	1	1	0
,, 7	,, G. H. Darwell	1	1	0
,, 7	,, J. L. Barling	0	10	6
,, 8	,, J. M. Axe ...	0	10	6
,, 10	,, T. Hopkins...	1	1	0
,, 13	,, W. Dobie ...	1	0	0
,, 14	,, A. L. Gibson	1	1	0
,, 14	,, M. Hack.....	2	2	0
,, 16	,, Wm. Woods..	0	10	6
,, 18	Messrs. J. Leather and Son ...	2	2	0
June 23	,, G. Ball and son	2	2	0

1884.		£	s.	d.
June 30	Mr. Thos. Proctor	1	1	0
July 10	Executors of the late Miss Dick, Bequest, less tax	92	18	2
,, 18	Mr. J. Rowe, on account of defence.....	5	0	0
,, 24	Messrs. Storey and Son	1	1	0
,, 31	Mr. J. Mackinder	2	2	0
Aug. 21	,, G. H. Thornley.....	1	1	0
,, 21	,, H. Ferguson	1	1	0
,, 21	,, J. Martin.....	1	1	0
Nov. 14	,, Wm. Dacre...	3	3	0
Dec. 30	,, G. Morgan ...	1	1	0
,, 30	Professor Axe	1	1	0
,, 31	Mr. F. Dun	2	2	0
		£137	4	8

THE FITZWYGRAM PRIZES.

WE are asked to notify that the competition for the above prizes will take place on May 12th at the Highland and Agricultural Society's rooms, Edinburgh, on the terms of previous competitions noticed in this Journal. The Principals of Colleges are requested to forward the names of candidates to the Secretary, R.C.V.S., not later than May 7th.

ANTHRAX IN INDIA.*

SIR,—In compliance with instructions from the Adjutant-General in India, forwarded under cover of your memorandum, I have the honour to report that on reaching Lucknow (28th July), I communicated with the General Officer commanding the Oudh Division, the Officer commanding, and the Officer in veterinary charge of the horses, 17th (D.C.O.) Lancers.

2. On the following morning I inspected the healthy horses, their stables, outer lines, and all surroundings; then the various camps of healthy, suspected, and convalescent horses and grass-cutters' ponies, which were segregated, or isolated, in well-selected situations, the present one forming the 2nd camp.

The horses under treatment for ordinary affections and the infirmary were inspected last.

3. *History, Past.*—Lucknow is an anthracoid centre, Anthrax occurring and recurring periodically—generally during the hotter months—to a variable extent, assuming more often the sporadic and enzootic than the epizootic character, amongst the horses of the British and Native Cavalry, Royal Artillery, and private owners among grass-cutters' ponies.

4. Documents in this office furnish the following statistics in European mounted corps, from 1879, in Lucknow :—

	Died.	Recovered.	Year.	Cavalry.	R.H.A.	R.A.
Anthrax.	4	2	1879	—	—	6
	9	10	1880	18	—	1
	1	—	1881	1	—	—
	2	—	1882	2	—	—
	1	—	1883	1	—	—
	17	12		22	—	7

No cases of Anthrax, *alias* Malignant Fever and Loodiana Disease, stand on record in the Lower Circle previous to July, 1877, which, however, is no proof of its non-existence. Long before this it was recognised in the Upper Circle; but non-recognised and unrecorded outbreaks must have occurred in the Lower one in preceding times.

5. *History, Present.*—The first case of this outbreak declared itself in horse No. 43, A troop, 17th Lancers, which had been standing in the

* A Report from Acting Inspecting Veterinary Surgeon Poyser to the Principal Veterinary Surgeon in India, dated August 26, 1884.

infirmary, and living on a bran diet, since 18th May, and was under treatment for a bursattic wound at an angle of the mouth.

He died, violently affected, four hours after the attack was observed, on 23rd June.

Period of incubation, source of cause, and mode of access unknown.

6. Awaiting the veterinary surgeon's return from duty at Fyzabad, the carcase remained 17 or 18 hours uncremated—an unfortunate occurrence, though under the circumstances (absence of professional advice) perhaps unavoidable. Immediate cremation would have destroyed a centre of infection which in hot weather may be rapidly spread by flies and other agencies.

7. Neither horse A 28—sharing the same box, and subjected apparently to similar, if not the same, influences—nor any other horse of A or any other troop in the infirmary became affected, nor did the disease show itself in the grass-cutters' ponies of that troop.

This sporadic case began and closed the first phase.

The usual precautions were taken, and danger seemed over.

8. But 14 days later, on 6th July, a horse of the 4th troop, 2nd Bengal Cavalry, died of Anthrax, 7 hours after observed attack.

9. At 9 a m. Sowar Goolam Nubbee, acting salootri, 2nd B.C., whilst conducting the *post-mortem*, scratched the back of his left fore-arm on a jagged rib, and became accidentally inoculated.

On the 8th July, about 48 hours after inoculation, he felt a "burning, tingling pain round about the wound, and experienced a feeling of stiffness in his limbs."

9th July.—Dr. Parsons declared him the subject of Malignant Pustule, contracted by inoculation from the horse's anthracoid carcase.

Malignant Pustule in man is synonymous with animal Anthrax.

A record of the case (marked "A") is attached. Period of incubation under 48 hours.

The disease began to wane about the seventh day. On the 30th July I visited the patient, who was walking about, and approaching convalescence.

This case is warningly interesting, affording another proof of the ready transmissibility of Anthrax from animals to man. It is evidence which cannot be too widely promulgated.

10. Three natives were imprisoned for stealing the flesh of the carcase—for eating purposes—whilst in the cinerator.

11. On the 12th July, B troop, 17th Lancers—the farthest removed range but one from the regimental infirmary and the 2nd Bombay Cavalry lines—declared itself infected, four of five attacked dying this day.

Two attacked on 13th recovered; one on 14th died; also an F troop grass-cutter's pony, on return from the jungle; a B troop grass-cutter's pony recovered, and a horse of 2nd Bengal Cavalry (2nd troop) died.

On 15th a B troop attack recovered, and a pony belonging to the sergeant-major of D troop died.

The latter stood at the eastern end of D troop range, which is next to that of B, *vide* plan.

On 17th	...	2 attacks	...	Recovered.
„ 18th	...	2 „	...	1 „ 1 died.
„ 19th	...	3 „	...	1 „ 2 „

And also a grass-cutter's pony of D/4, R.A., after return from jungle.

On 20th	...	1 attack	...	...	...	died.
„ 26th	...	1 „	...	...	...	„

Here ended the outbreak in the 17th Lancers, but a report has reached me that a horse of the 5th troop, 2nd Bengal Cavalry, died on 3rd August, and a yaboo (a grass-carrying animal), the property of the same sowar, died on the 4th August, 1884.

12. A copy of the register of sick horses is appended :—

Troop.	Regimental No.	Colour.	Sex.	Caste.	Age.	Disease.	Date of Admission.	Date of Discharge.	Remarks.
A	43	B	G	W	13	Anthrax	June 23	June 23	Died.
B	31	Ch	M	S	14	,,	July 12	July 13	Died.
B	62	B	M	W	9	,,	,, 12	,, 17	Died.
B	17	B	M	W	8	,,	,, 12	,, 13	Died.
B	59	B	G	C	7	,,	,, 12	,, 18	Died.
B	3	Ch	M	S	14	,,	,, 12		Recovered.
B	66	D	M	S	12	,,	,, 13		Recovered.
B	50	B	M	S	14	,,	,, 13		Recovered.
B	53	B	M	W	15	,,	,, 14	,, 16	Died.
B	24	B	G	W	13	,,	,, 15		Recovered.
B	26	B	G	C	10	,,	,, 17		Recovered.
B	43	B	M	S	12	,,	,, 17		Recovered.
B	49	B	M	C	8	,,	,, 18		Recovered.
B	4	G	G	S	13	,,	,, 18	,, 21	Died.
B	51	B	M	W	9	,,	,, 19		Recovered.
B	10	B	M	W	6	,,	,, 19	,, 23	Died.
B	47	B	G	C	9	,,	,, 19	,, 21	Died.
B	45	B	G	W	9	,,	,, 20	,, 21	Died.
B	42	B	M	W	9	,,	,, 26	,, 26	Died.

13. *Inspection.*—On inspecting the horses of the 17th Lancers, I could detect no individual or personal causes which observers have classed as predisposing to Anthrax ; they were notably absent, though, generally speaking, the horses were in good order, and, for the time of the year, with some exceptions, fresh enough.

Youth, as a predisposing cause, did not exist, all the attacked having reached maturity ; the average age of deaths being $10\frac{2}{12}$ years ; of recoveries, $10\frac{3}{4}$; youngest 6, oldest 15. There can be but few below 6 and above 15 in the regiment. *Vide* table below :—

Ages, etc.	Attacked.	Died.	Recovered.	Remarks.
6	1	1	—	
7	1	1	—	
8	2	1	1	
9	5	4	1	
10	1	—	1	
12	2	—	2	
13	3	2	1	
14	3	1	2	
15	1	1	—	
	19	11	8	
Geldings	7	5	2	
Mares.....	12	6	6	
	19	11	8	

The condition of the recovering horses was fairly good on 29th July.

14. The grain feeding had been, too, what observers have regarded as inimical to the acquirement of plethoric, or even thriving, conditions—viz., ½ bran, ½ grain, the quality of that inspected being good and satisfactory.

15. Excepting that the grain was insufficiently crushed, the entire preparation was correct.

16. The grass, since the rainfall, has been good and plentiful; previously it had been scarce and inferior, and was supplemented with a small allowance of bhoosa.

17. Although a thriving condition, resulting from a highly nutritious grain diet, unchecked by adequate exercise and other health-inducing influences, is regarded as conducive to the rapid development of Anthrax after infection, and though thermal, telluric, atmospheric, and meteorological conditions are said to play very important parts as predisposing factors, and which are probably more intimately associated with the life-history of the cause than of its hosts—all these conditions, unintelligible as some of them are, are decidedly subservient to the inception of the bacillus anthracis, the living parasite whose habitat we are so anxious to be able to recognise.

18. I mention this to show that the disease is not a mere question of bad feeding or bad sanitation; but such conditions are highly calculated to seriously enhance the influence of predisposing agents, and should, therefore, receive the greatest possible attention and the most constant supervision by every one concerned.

19. Some of the climatic conditions just considered existed previous to the first appearance of the disease on the 23rd June, when the monsoon broke.

Rain also fell three or four days previous to the second appearance on 12th July.

20. The water and watering arrangements were satisfactory in all respects, the well's water being found physically good, sweet, clear, and potable.*

21. On the 26th May the veterinary surgeon in charge had good occasion to point out the evil results which were likely to accrue to the 17th Lancers' horses by watering in the Goomtee stream—a course adopted during very dry weather and great scarcity of well water. (*Vide* his No. 69 D, Lucknow, 26th May, 1884, marked "C.")

22. I can adduce no reason to trace any connection between this system of watering and the appearance of Anthrax on 23rd June, or later.

23. With the stable management generally I was satisfied. The sanitary conditions of the stables and surroundings were very good.

24. The outer standings are in a bad state for want of repair; some were dug up for examination, and found comparatively clean.

25. The inter-rangal spaces used as outer standings are too small and confined for the number of horses in occupation. Each half-troop there has a useless head-wall, which should be cleared away, as being most obstructive to ground ventilation.

26. Nothing should remain above the surface except the low manger-walls, and a small 12-inches high support for the water-basins.

27. I would recommend that only half the number of horses occupy the inter-rangal areas; or, better, that they be entirely cleared and abandoned, provided there be room, and no objections to constructing plain outer raised lines, without walls, along the flanks of the ranges, to run north and south.

28. From an examination of B troop flooring, now in process of excavation and removal, I could detect nothing even of an unsanitary nature, and certainly nothing could be declared to be disease-producing.

*Other troops, which remained unaffected, had been watered at the same well as the affected one.

29. Excepting those of B and D troops, all the kunkur floors had been recently replaced by a 3-inch substratum of rammed broken brick, overlaid by 3-inch solid bricks, surfaced by six inches of ordinary earth.

No cases occurred during these excavations, which, for financial reasons, were not extended to B and D troops.

30. It was only after the outbreak and abandonment of these ranges that the original intention of completing the re-flooring was resumed.

31. Whilst there is no direct evidence to warrant my imputing blame to the state or material of the floorings as factors or co-factors in the development and evolution of this outbreak, there are, of course, very cogent reasons why those floors upon which infected subjects have stood, died, or recovered should be removed and thoroughly disinfected, to obviate the formation of new infective centres, and it is frequently advisable to extend such operations farther.

32. The fouled kunkur and earth of stable floors is not unfrequently utilised on adjacent roads and about barracks—a course which the sanitist would consider prejudicial to health and life, but which the economist would regard as a saving of material and labour.

33. It is here worthy of remark that, whilst Government sanctions labour, appliances, and material for the demolition and reconstruction of floors under *roofed* stables, regimental labour is taxed to remove and repair the uncovered standings, which may be just as much infected.

34. The consequence is that these latter positions are neglected, regimental labour and appliances being inadequate for the work.

35. On this showing, the question naturally arises, What is the use of removing one and not the other set of floors, as a suppressive or preventive measure, when each position is equally occupied?

36. There needs but little reference to the actual cause of Anthrax or to its character or nature. Suffice it to say that it is blood parasitism, due to a living organism, termed bacillus anthracis.

37. But it is with the habitation and source of this agent, with its mode of conveyance and access to the system, that the profession is still concerned.

And until each outbreak can be identified with these phases of causation, or until protective inoculation is made to confer immunity, Anthrax will continue to flourish, though it is in the highest degree possible to check or even prevent it—in a limited sense—by exercising a watchful influence over sanitation in general, and by controlling the other predisposing causes, intrinsic and extrinsic, so far as they are in our power, and which they are, in the matter of food, its source and supply—by feeding on hay not "cheeled," cut above ground, and from uninfected spots. But here, again, is the difficulty—how are these situations to be recognised?

38. Here I would refer to my printed notes on "Anthrax Investigations in Sialkote, in 1883."*

39. It has not yet been explained why one station—such as Meerut—is free from Anthrax; why the mortality is less in Rawal Pindi now than a few years ago; why epizootic in Lucknow this year, sporadic last, and so on. These are the questions still wanting irrefutable answers.

40. They may yet be found intimately connected with the grass and its supply.

41. The more striking features of this outbreak are as follow:—

1st. Its attack in the solitary case, A 43, in the veterinary infirmary, and the non-infection of his close neighbour, A 28.

They were presumably feeding on portions of the same heap of grass, and apparently exposed to the same causes.

If, as I believe, the germs of the disease come in with the earth attached

* *Vide* VETERINARY JOURNAL, vol. xviii., pp. 87, 177, and 258.

to the grass, it is highly probable that A 43 became cutaneously inoculated through the bursattic wound for which he had been under treatment since the 18th May.

2nd. Its sudden cessation with this case.

3rd. Its reappearance in B troop range on 12th July, and the epizootic character it assumed in this troop only—the most remote range but one from the infirmary, and still more remote from the 2nd B.C., where it had shown itself sporadically on the 6th July, there being in this latter case most certainly no other connective medium than that of the veterinary surgeon, who was in charge of both regiments and the Artillery.

4th. Horses No. 59, 17, 62, standing next to each other, 31 (opposite to 59), attacked on the 12th, and died ; whilst 6 (neighbour to 59) and 7 (between 62 and 53—a later fatal case) escaped infection.

5th. Attack, and death, on 14th July, of sergeant-major's pony, D troop, standing at the east end of that range, and opposite to that end of B troop worst affected.

6th. The escape of D troop (next to the north) and F troop (next to the south).

42. Most of the cases of B troop manifested themselves after removal into No. 1 camp.

It is not clear, but probable, that all were not infected before leaving the range, unless the period of incubation was of a longer period than is believed to be.

43. The incubative period, however, is doubtless influenced by the amount and condition of the poison incepted, by individual receptivity, and by the manner of inception. Traumatic inoculation would give the shortest period of incubation ; inception by respiratory tract perhaps longer ; by alimentary tract longest.

44. And it may be that many cases meet with direct inoculation through wounds in the lips, nostrils, mouths, and neighbouring parts, accounting for capital, maxillary, cervical localisation, and so on.

45. The stalls of the other affected horses ranged from end to end and on each side of the building, the most easterly portion of the eastern half on the north side showing the most cases in the smallest compass,

As 4 deaths and 3 recoveries against

2	„	2
1	„	3
3	„	0
10		8

46. I know nothing certain of the source of the cause, of its deportment, or of its access to the system—nothing of the circumstances which have initiated, directed, or arrested the disease in this or other outbreaks ; but deductions thereon favour the argument that the poison of Anthrax is not very volatile, and, *per contra*, that it is more fixed in character.

Other authorities in India have advanced no farther.

47. Until something more tangible can be shown, it will be assumed that the living Anthrax germ comes in with the soil attached to the grass forage, and more likely to be brought in by (cheeled) grass cut below than above the ground's surface.

48. In the absence of other theories or facts, the profession has accepted this on the experiments of Pasteur, and bases, so far as it can, its measures of prevention. But under the present constitution of the grass supply neither the profession nor any other authority can have any control over the wanderings of the grass supplier ; and, supposing it could, who can tell where to avoid Anthrax ?

Though every possible precaution was taken, I observed, for the second time, women cutting grass for the regiment within a few yards of eight recovering cases of Anthrax.

49. Rain invariably precedes an outbreak of Anthrax and arouses the bacillus into activity.

50. Pasteur credits the earthworm (and the white ant may, therefore, be credited) with doing much mischief, by raising, with its upheavals, the spores of the bacillus, for he found the soil above the graves of animals which had died of Anthrax—buried ten or twelve months—literally teeming with the spores.

51. It is noteworthy that Lucknow at this time is covered with these small mounds of the earthworm, but the work of a microscopist—a specialist—is essential for deeper investigation here.

The bacillus was not microscopically discovered by the medical officer in the material supplied by the veterinary surgeon. In the first place, it is not always to be seen; and in the second, the power used, 300 diameters, was insufficient to define the rods and spores.

52. The suppressive and preventive measures were well and strictly carried out by Veterinary Surgeon Matthews; he is inclined to attach value to his treatment of the recoveries with Little's soluble phenyle, which has, however, failed in previous outbreaks under my care.

53. It was represented that the McDougall's disinfecting powder supplied was useless, had been condemned, and that but little of reliable quality was obtainable from the Commissariat Department—to which defect I would invite attention.

54. Veterinary Surgeon Burke, ordered in from Cawnpore, took charge of the Royal Artillery horses (which escaped infection) on 24th July, but was on sick list a week, so that on Mr. Matthews devolved the whole work of two Cavalry regiments, 1 Battery of R.H.A. and 1 R.A., and all their grass-cutters' ponies, as well as that occasionally dropping in from Commissariat and Transport lines.

55. We must summon increased veterinary supervision, if animal diseases are to be reduced to a minimum.

It is only by constant observation by professional officers that such outbreaks can be early recognised and early checked.

56. The work of army veterinary surgeons is directed quite as much towards prevention as cure, but its loses its good influences and value by being over-taxed, yet they are limitless when exercised over manageable charges.

57. I returned to head-quarters on the 3rd August, 1884.

I have, etc., (Signed) RICHARD POYSER,
Officiating I. V. Surgeon, 2nd Circle.

A.

NOTES OF A CASE OF POISONED WOUND (MALIGNANT PUSTULE) UNDER THE TREATMENT OF SURGEON-MAJOR PARSONS, 2ND B.C., LUCKNOW.

Sowar Goolam Nubbee, Mahomedan, age 24, service 4 years, acting as salootri in the horse hospital of the 2nd Bengal Cavalry. There is no entry of admission into hospital in his medical history sheet up to date. He states that all his family have been remarkably healthy. On the 6th July a horse died from Anthrax (Loodiana Fever) at 6 a.m., and at 9 a.m. the patient was performing a *post-mortem* on the body of the horse, when he scratched the back of his left fore-arm against the jagged ribs of the horse. He did not take any steps at the time to cleanse or cauterise the wound; when he had

finished the *post-mortem* he only washed his hands and arm in a bucket of water. He took no notice of these scratches, nor did he experience any pain, or anything to draw his attention to them, until the 8th July (almost 48 hours after making the *post-mortem*), and then, he says "he felt a burning, tingling pain round about the wound," and at the same time experienced "a feeling of stiffness of his limbs."

9th July.—He went to hospital, and showed his arm to the hospital-assistant, and said that it was paining him. He was at once taken to Surgeon-Major Parsons. His arm was then swollen, œdematous, and round the wound were four or five little vesicles, with inflamed, indurated bases. There were also several of the same character on the right fore-arm and back of hand. All these vesicles, as well as the wound from the scratches—the point of inoculation—were touched with strong carbolic acid, and carbolic oil dressing applied.

The patient, of his own accord, had taken a dose of sulphate of magnesia.

10th July.—Swelling of the fore-arm has increased, and the patient complains of much pain and increased stiffness of limbs; a yellow fluid discharges from all the pustules, which are surrounded by a red, inflamed base, and containing in the centre a black eschar. He appears now anxious about himself and depressed.

11th July.—Slight fever in the morning, which increased during the day, until his temperature at 6 p.m. was 103·8; tongue coated.

The inflammation round the original wound has increased; bowels acted freely, after a saline aperient; linseed and charcoal poultices to be applied over fore-arm, and to have a sleeping draught at 9 p.m.

12th July.—Slept well during the night, and says "he feels easier"; temperature at 6 a.m., 102; pulse 92; bowels open; tongue white and furred; breath fetid; all the larger pustules crucially increased, and cauterised with strong carbolic acid, followed by carbolised oil dressing; to have quinine, gr. v., acid nit. min. dil. m. × ft. hau. three times a day, and ʒii. brandy; 6 p.m., temperature 98·2.

Sleeping draught to be repeated.

13th July.—Slept well; feels better; temperature normal; skin cool and moist; tongue clean; pulse 91; bowels open freely; pustules and wound in much the same state as yesterday.

14th July.—Appears much better; tongue clean; bowels freely open; breath has lost its fetid odour; no fever; little or no pain, and no stiffness of limbs; pustules less inflamed, and swelling and induration less.

No alteration in treatment.

15th July.—Is much better; pulse 73; temperature 97·6.

16th July.—Improving; is no longer depressed; has a good appetite, and is taking a meat diet.

17th July.—Looks better; there is scarcely any swelling of left fore-arm; the sores left from the pustules are looking healthy, granulating from the edges; there is a hard, indurated ridge round each sore; quinine disulph. gr. ii. p. bis diæ.

18th July.—Doing well; omit brandy.

20th July.—The sore of original wound is looking inflamed and somewhat swollen; no pain; temperature normal; carbolised oil dressing to be replaced by charcoal poultice; other sores to be dressed with zinc lotion, gr. iv., ʒi.

21st July.—Inflammation round sore much less; continue treatment.

22nd July.—The wound appears to have ceased granulating, and a slough is forming round and under the eschar; pain very slight, and feels fairly well; appetite good.

25th July.—Wound is rapidly healing; most of the smaller sores have healed; appetite good, and sleeps well.

30th July.—Going on very well; the eschar over centre of wound has fallen off, leaving underneath a healthy, granulating surface.

C.

COPY OF A LETTER No. 69D, LUCKNOW, 26TH MAY, 1884, FROM 1ST CLASS V.S. J. MATTHEWS, A.V.D., TO THE O.C. 17TH LANCERS.

In the course of inquiry into the causes giving rise to the serious cases of abdominal disease which have recently occurred in the regiment, two of them terminating fatally, I visited the watering place at the river Goomtee, and am of opinion that the impurity of the water is not only sufficient to account for these cases, but that there is grave reason to fear an outbreak of Anthrax Fever if its use is not discontinued.

2. The current of the stream is very sluggish, shallow in most places, in many absolutely stagnant, and abounding in impurities of a varied nature, comprising those derived from the human body, soiled linen, animal and vegetable matters. I counted nearly fifty natives performing ablutions in the vicinity, and was informed hundreds use it in the course of the day.

3. The horses drank sparingly, some few refusing, though allowed ample opportunity to drink by their riders, and after a long, dusty walk from barracks.

It is also very desirable at this season of the year to avoid exposing the horses unnecessarily to the rays of the noonday sun.

4. I beg to recommend the horses may be watered in the lines, or from a purer source than the present, and, in support of this, to point out the immunity hitherto enjoyed by the horses of the Artillery from diseases of this nature, though under precisely the same system of stable management, stabling, and feeding, but watered frequently in their own lines.

I further beg to inform you of the serious risk that is incurred, by the use of this water, of an outbreak of acute infective disease, chiefly characterised by its rapid development and fatal termination—I mean Anthrax Fever.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

QUARTERLY MEETING OF COUNCIL, HELD JANUARY 5TH, 1885.

Professor WALLEY, President, in the chair.

Members present:—Professors Axe, Brown, McCall, Pritchard, Robertson, Walley, Williams; Messrs. J. D. Barford, F. Blakeway, B. Cartledge, H. J. Cartwright, J. Cox, E. C. Dray, T. Duguid, T. Greaves, J. Harpley, H. R. Perrins, A. H. Santy, H. L. Simpson, P. Taylor, W. B. Walters, Wm. Whittle, Wm. Woods, F. W. Wragg, and the Secretary.

The minutes of the previous meeting were taken as read and confirmed.

Letters were read from Sir F. Fitzwygram, Dr. G. Fleming, Messrs. Reynolds and Simcocks, regretting their inability to attend the meeting.

Presentations to the Library.

Presentations to the library were announced from Professor MacFadyean of his work on "The Anatomy of the Horse"; a "Calendar for 1884" from

the College of Surgeons of England ; and a work by Bracy Clark on "The Foot of the Horse" (donation by Dr. P. Middlemist).

On the motion of Mr. DRAY, seconded by Mr. TAYLOR, the thanks of the Council were given to the donors.

Letters were read from Mr. Broad, of the Central Veterinary Society, thanking the Council for the use of the room ; from Messrs. Withers, acknowledging the letter sent by the Council on the death of their father.

An application from Mr. G. Garnett, with reference to the loss of his diploma in the fire at Messrs. Whiteley's, was considered, and proof having been received that the diploma was so destroyed, it was resolved, on the motion of Mr. TAYLOR, seconded by Mr. DRAY, that the usual certificate be given to Mr. Garnett in lieu of the diploma he had lost.

A letter was read from Professor MCCALL, calling attention to the evidence given by Mr. Erskine, a veterinary surgeon, in a case of cruelty to a horse.

Professor MCCALL said he had been requested by the members of the profession in Glasgow to bring the matter to the notice of the Council. He was not prepared to make any motion upon it.

The PRESIDENT said it was a gross kind of thing, but the Council could not interfere.

On the motion of Mr. TAYLOR, seconded by Mr. DRAY, the letter was laid on the table.

Letters were read from Dr. Fleming on the subject of examinations, and were laid on the table.

A letter was read from Mr. Simcocks, withdrawing the motion of which he had given notice until the next meeting of Council.

Election of extra Examiners in Class C.

A letter from the Solicitor to the Council was read.

Professor MCCALL said at a previous meeting of the Council he brought forward a motion to the effect that additional Examiners should be appointed to conduct the Final Examination. That motion came up for discussion, and it was agreed, with only two or three dissentients, that four additional Examiners should be appointed. After that was decided, the names of certain gentlemen were submitted, and four gentlemen, as he believed, were appointed. He was then quite in ignorance that they were proceeding too rapidly, but it appeared that that was the case, and therefore it was necessary *pro forma* to elect those gentlemen over again. He therefore proposed that the additional Examiners should now be elected.

Mr. WHITTLE seconded the motion.

Professor AXE said the whole proceeding appeared to have been based upon a hypothetical assumption on the part of some one that the Examiners could not perform their duties with ease to themselves. At present they had received no communication from the Examiners that they were not able to do the work ; it was simply an assumption, and surely on such an assumption they were not going to proceed to elect four additional Examiners.

Mr. TAYLOR submitted that the opinion of the Solicitor should be taken as to whether the Council had power to pass such a resolution. The Examiners were elected in 1882, and he contended the Council had no right to increase the number until 1887. He would propose, as an amendment, that the Council should not proceed to elect additional Examiners.

Professor AXE, in seconding the amendment, said the matter had arisen in this way : a short time ago at one of the examinations a larger number of students than usual were rejected, and upon that certain statements were made and innuendoes thrown out inside and outside teaching schools, which he could not say reflected credit upon either the one or the other. It was assumed that the fault was either with the student or the Examiner, but the

Council should not attach blame to the one or the other, especially in the absence of any evidence that there was any inattention or want of power to examine on the part of the Examining Board. He believed that he was speaking the sentiments of his chief when he said that they were perfectly satisfied with the Examining Board as it was now constituted. He suggested that a committee should be formed for the purpose of considering the whole question, and especially the facilities for teaching at the various schools; in fact the whole curriculum. If the schools were to govern the Council, the Council must known something about the schools.

The PRESIDENT said that full reasons were given for the bringing forward of this motion at the last meeting of Council, and it was no fault of theirs if members were not present on that occasion. He deprecated the remarks made by Professor Axe, and said he had introduced elements into the discussion of the subject which had not been introduced by any supporter of the motion. He must remind the Council that due notice of his intention to bring the matter forward was given by Professor McCall at the July meeting, but, unfortunately, owing to a misapprehension on his (the President's) part, the Secretary had not inserted in the Notices of Meeting issued to the Members of Council that the motion would be proceeded with. This should have been done in accordance with bye-law 74. This irregularity, however, only legally affected the election of Examiners; it did not affect the resolution of the Council to proceed with the election. After the remarks which had been made he should not stand upon his legal right to proceed with the election, but would allow the matter to be reopened throughout.

Mr. HARPLEY said no action had been taken by the Examiners to bring this matter before the Council. There was no documentary evidence that they were dissatisfied with their position, or had too much work to get through. They had got through half their period of five years. He did not, therefore, feel disposed to support the motion.

Mr. SIMPSON asked if this alteration would involve additional expense.

The PRESIDENT said there would only be the additional travelling expenses.

Professor ROBERTSON objected to the augmentation of the number of Examiners, although as the question was pressed very strongly by their friends from the north he had consented on the last occasion to second Professor McCall's motion.

Mr. DRAY said he believed that if these additional Examiners were appointed, it would involve an extra expense of from £100 to £200.

Mr. WALTERS said, as an Examiner in Class A, he had never yet found that the Examiners were too few. He had never heard any complaint either from Examiners or Principals with regard to the mode in which examinations had been conducted.

Mr. COX said the Examiners were sometimes overtaxed, for, although the custom was that nine students should be examined at each examination, they were often called upon to examine ten, eleven, or twelve, and without any extra fee.

Professor WILLIAMS said, although the Council had power to elect a much larger number practically, they had only eight Examiners, who absorbed all the honours and all the emoluments connected with the examinations. It was a great honour to a member of the profession to be an Examiner of the Royal College of Veterinary Surgeons. Why, then, confine that honour to these eight men? Were they the only men in the profession capable of conducting an examination? If men were appointed residing near the towns where the colleges were situated, there would be no travelling expenses at all, for no allowance was made for the first 100 miles. He thought it a pity that an element of discord should have been dragged into the discussion.

There was no reflection upon the Examiners ; they were perfectly satisfied with what they had done in the past. They knew the Examiners were often fagged out, for he must confess that to examine practically in the morning, and orally in the evening was very fatiguing work, and if it was continued by the week together, it must be very exhausting. If the honours of the profession were not limited, but the Examining Boards were extended, he felt quite sure the Examiners and the schools would be far better satisfied. He did not see why the Examiners should oppose this resolution ; it almost seemed as if they were afraid that their fees would be diminished.

Professor PRITCHARD said, so far from its being a question of looking after the money, at the last examination in Scotland he was £50 out of pocket.

Mr. WALTERS said he had never made one penny-piece by his fees ; on the contrary, he had lost money by every examination.

Professor MCCALL said he had never suggested inefficiency on the part of the Examiners, nor did he attribute to them a love of office because they derived money from it. He simply stated that a large sum of money was paid for the examinations of these students, and that it was a great honour to be an Examiner, but he thought that honour ought to be divided.

Professor BROWN said the arrangement as it now stood was the result of careful inquiry by a committee, of which Sir Frederick Fitzwygram was chairman. The idea of a change was to him entirely new, but there could be no great hurry, surely, for the alteration of a system which had gone on with more or less success for some years, and would in the natural course of things expire in about two years more. At any rate, if an alteration was necessary, he agreed with Professor Axe that it might be an alteration which would relate to the colleges as well as to the Examining Boards. He suggested that they should not be precipitate, but that the question might be deferred until more information was placed before the Council.

The amendment was then put to the Council and agreed to, fourteen voting for it, and seven against.

Professor Brown's Pamphlet.

The Report of the Committee of Council appointed to wait on the Veterinary Committee of the Royal Agricultural Society, with regard to Professor Brown's pamphlet, was read.

Professor BROWN said that he attended the committee, and told them that they had utterly mistaken his views from beginning to end ; that he most carefully and assiduously endeavoured not to do exactly what they said he was doing. The scheme which he was accused of having originated, which certainly never originated in his head at all, was an extension of a scheme started by the Agricultural Society before he was born, and had been carried out by the Royal Veterinary College ever since ; a scheme for allowing members of the Society certain privileges by which they were enabled to apply to the College for advice, and usually the Principal of the College was called upon by the Society to visit cases at any distance at a fixed remuneration. Some years ago they extended the system by dividing the country into a number of large districts, and appointing seven or eight district veterinary surgeons. Subsequently, Earl Cathcart asked him to write a pamphlet to enable farmers to treat cases of emergency in something like a rational way, both in their own interests and in those of the veterinary surgeons. His idea was to get surgeons and farmers to establish a contract system, so that the farmer might always have the opportunity of a little friendly advice from the veterinary surgeon in his district, and might at the same time get from him the medicines which he would certainly get somewhere, so as to abolish as far as possible the system of using adver-

tised nostrums. From the beginning to the end, he (Professor Brown) thought he was doing everything that could be done for the purpose of bringing about a closer connection between the veterinary profession and the farmers. To come to the gist of the whole matter, provincial veterinary surgeons had to send a report of the applications which were made to them on that system, and during the last four or five years of the continuance of the scheme the Society had had two reports, one about two years ago and one before the last veterinary committee. If after this statement they did not come to the conclusion that the whole thing was a tempest in a tea-cup, he really could not compliment them on their powers of comprehension. There was not the slightest question that a very great fuss had been made about nothing, and that if the thing was left alone matters would go on very much as they had done for the last quarter of a century.

Mr. SIMPSON did not doubt Professor Brown's good intentions, but he knew these were not appreciated by those interested in the question, namely, the country practitioners. Members of the Royal Agricultural Society had veterinary privileges of old standing, he knew, for he was a life member himself. They could have visits from the Professors of the Royal Veterinary College, London, on payment of a comparatively small fee, and where the cases were too far off for London aid to be procurable, they could consult at a fixed charge veterinary surgeons who were appointed two or three years ago to act in special cases as consulting veterinary surgeons—an acknowledged higher branch of the profession. To appoint a veterinary surgeon in each county, principally to vend drugs and medicines, was a very different thing, and must tend to lower the profession and to seriously interfere with the calling of the other country practitioners ; although in all probability, farmers would now go, pamphlet in hand, to the druggists for whatever they wanted. The Council did quite right to send a deputation, and in time the representations it made would weigh with the Royal Agricultural Society. He did not expect they would at once drop a scheme on which they had spent time and money.

Mr. PERRINS regretted the publication of the pamphlet. It had been copied into the penny journals in his district, and he had been told by several clients it enabled them to dispense with his professional services.

Mr. SANTY said the profession were very much averse to Professor Brown's pamphlet, which not only told farmers the medicines they were to use, but described exactly the way in which they were to treat each individual case.

Professor AXE thought this discussion involved one of the greatest anomalies he had ever heard of. They were endeavouring to put a stumblingblock in the way of education, so far as the agriculturist was concerned, but it did not occur to them that the agriculturist might just as well complain of the instruction given in the agricultural journals to the many veterinary surgeons who were also pursuing the occupation of farmers. Were they, as a profession, dealing fairly with the Royal Agricultural Society, which had expended hundreds and thousands of pounds in elucidating pathological questions which, but for that expenditure, would have remained unexplained? The veterinary surgeons had had the advantage of the money so expended, and it was rather unfair for them to cry out when any member of the profession attempted to give the agriculturist a little instruction in dealing with domestic medicine.

The PRESIDENT thought that all who knew Professor Brown would not credit him with any other than good motives in acting as he had done in this matter, and said when he first saw the pamphlet he did think it would work harm to country practitioners, inasmuch as it put in the hands of chemists all over the country the recipes of a man who was well known in the profession, both in connection with agricultural matters and also with the

Privy Council. He had seen no reason to alter that opinion, and he still thought that published recipes bearing the name of a man like Professor Brown would lead to veterinary surgeons being deprived of a large part of their income. That was the reason why he took action in the matter; but he thought it might now very well be allowed to drop, and they might hope that it could do no harm.

The matter then dropped.

Mr. B. CARTLEDGE said a paragraph appeared in the *Country Gentleman*, which he had been asked by some of the leading hunting men in Leicestershire and elsewhere to bring before the Council. It was headed "Hunting Gentlemen and their 'Vets.'" "A correspondent writes as follows:—'The following letters from a veterinary surgeon were, unfortunately for him, put into the wrong envelopes:—"Sir,—In reply to your letter, I have examined Mr. ——'s two horses. They are both perfectly sound, and likely to suit you well. Your obedient servant ——, M.R.C.V.S."—"Dear ——, Mr. —— is coming to look at your horses. Make him pay; he can afford it. Any wretch is good enough; but don't let on that I've never seen them. Yours truly, ——"'" He was not prepared to make any proposition with reference to it, but it might appear upon the minutes that it had been brought before the Council.

Professor WILLIAMS said he thought it was a dream of the printer's devil.

The PRESIDENT thought the Council could not act in the matter, and the subject dropped.

House Committee.

The report of the House Committee was read and agreed to. It was also agreed that it should be left in the hands of the House Committee to provide offices for the Secretary and the College during the rebuilding.

It was proposed by Mr. B. CARTLEDGE, and seconded by Mr. TAYLOR, and agreed to, "That the whole of the details connected with the new building be left in the hands of the Committee already appointed.

Professor WILLIAMS suggested that the Committee should select their own Clerk of the Works.

It was also agreed, on the motion of the PRESIDENT, that the copy of the front elevation should be sent out with the annual report to every member of the profession.

Registration Committee.

The report of the Registration Committee was read.

Professor WILLIAMS moved "That the recommendations of the Committee be carried out."

Mr. SANTY seconded the motion, which was agreed to.

The Register.

It was proposed by Mr. DRAY, seconded by Mr. PETER TAYLOR, and agreed to, "That the Register be published as usual, and that the names of students about to be examined be added to the Register before publication"

A letter was read from the Privy Council with reference to the withdrawal of certain quotations appearing in the Register.

Mr. TAYLOR moved, "That the quotations referred to be withdrawn, in accordance with the wishes of the Privy Council, and that a letter be sent stating that that course would be adopted."

Professor PRITCHARD seconded the resolution, which was agreed to.

Finance.

The report of the Finance Committee was read.

Mr. TAYLOR proposed "That the report be adopted, and that cheques be drawn to meet the outstanding accounts."

Mr. CARTWRIGHT seconded the motion, which was agreed to.

The obituary list was read.

Auditors.

On the motion of Mr. TAYLOR, seconded by Mr. CARTWRIGHT, Messrs. Broad and Woodger were re-elected Auditors for the forthcoming year.

SPECIAL MEETING.

Professor WILLIAMS said he should withdraw the motion of which he had given notice.

The PRESIDENT said in that case his motion would also be withdrawn.

Professor McCALL said he had received a letter from Sir Frederick Fitzwygram, asking him to support the first part of his motion, "That a third Examiner be appointed to each section of the Final Examination." With regard to the second part of the motion, "That an Examiner be appointed to each section of the First and Second Examination," he was not quite decided, and left the matter in his (Professor McCall's) hands. He was quite aware that Sir Frederick's motion was practically owing to the success of the motion which he (Professor McCall) had the honour to propose, but which had been that day rejected; and he would therefore take the liberty of withdrawing the two motions, so far as Sir Frederick was concerned.

The consideration of the third notice of motion, in regard to the "Law of warranty," given by Sir Frederick Fitzwygram, was deferred until the next meeting of Council.

Dishorning of Cattle, etc.

The PRESIDENT, in bringing forward the question of the dishorning of cattle, and the overstocking of the udders of cows, said he thought this was a matter for the Council to take into its consideration. The process of dishorning—by cutting the horns off close to the head, or half-way off in the case of two-year-olds—was no doubt cruel and unnecessary, and there were many ways in which the same end might be obtained without permitting cruelty at all. The overstocking of the udders of cows was also cruel and unnecessary; he meant that a cow which had recently calved should be kept for a certain period, say twelve hours, without having its udder eased. It was a common practice in markets to leave them for eighteen hours, or even longer, without taking a drop of milk from them, a practice which gave rise to much suffering. He should therefore ask the Council to declare that these practices were cruel and unnecessary.

Professor PRITCHARD said he was sure there was no one in the room who was not thoroughly aware how much he abhorred these operations, but still, as in the case of docking horses, he did not think it was the business of the Council in any shape or way to interfere.

Professor WILLIAMS said it would be a departure from the business of the Council to deal with questions of this kind.

Mr. CARTLEDGE asked what would be gained by passing such a resolution?

The PRESIDENT said his impression was that it would strengthen the hands of the Society for the Prevention of Cruelty to Animals.

Professor McCALL, while agreeing with the President in everything that he had said, thought that that was not the proper place for giving an expression of their opinions with regard to what was cruelty and what was not. He was perfectly willing, as an individual, to do all that he could to put down any such practices, but they could not deal with the subject at that Board.

Mr. WHITTLE said the overstocking of cows in large markets was so well looked after by the Society and by the police, that it was a very rare thing to see it done.

The PRESIDENT, in withdrawing the motion, said he yielded to the Council in the matter, but he had to express a strong opinion that the discussion of such subjects came within their province. He had to thank those gentlemen who had spoken, for their sympathy with the motion.

The proceedings terminated with a vote of thanks to the President.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

A MEETING of the above Association was held at Aylesbury on the 28th of November last. G. A. Lepper, Esq., President of the Association, entertained the members at luncheon previous to the meeting. On the tables were a number of silver cups and pieces of plate which Mr. Lepper had won at various agricultural shows, by horses which he exhibited (many of which he bred). One valuable and handsome cup had been presented to Mr. H. G. Lepper as a testimonial from gentlemen hunting in the Vale of Aylesbury.

The members present besides the President were: Messrs. H. G. Lepper, T. W. Lepper, Joseph East, James East, Aylesbury; Flanagan, Reading; Drewe, Abingdon; Simpson, Maidenhead; Simpson, Windsor; Wheatley, Reading; Walker, Oxford; Walker, 1st Life Guards; Castle, Thame; Mellett, junr., Henley; Verney, Oxford; Bull, Deddington; Powell, Newton Longville; Emerton, Stony Stratford; Varney, Winslow; Slocock, Hounslow; Professor Pritchard, London; and Kidd Hungerford.

Apologies were received from Messrs. Wragg, Darling, Chisholm, Howard, Sants, Simpson (Witney), Wyndham Bryer, Irving, Hanks, Page, Rostron (2nd Life Guards), Hunt, and Wilkins.

The minutes of last meeting were read and approved,

Professor Robertson was unanimously elected an Honorary Associate, and Mr. J. D. Barford, M.R.C.V.S., Southampton, was unanimously elected a member of the Association. Mr. Walker, Treasurer, submitted a statement of accounts for the past year, which showed a balance in hand of £30.

The following office-bearers were unanimously elected for the ensuing year, viz., President, Mr. W. G. Flanagan, M.R.C.V.S., Reading; Vice-Presidents, Messrs. G. A. Drewe, M.R.C.V.S., Abingdon; G. A. Lepper, F.R.C.V.S., Aylesbury; J. F. Simpson, M.R.C.V.S., Maidenhead; H. L. Simpson, M.R.C.V.S., Windsor. Treasurer, Mr. J. P. S. Walker, M.R.C.V.S., Oxford. Hon. Secretary, Mr. H. Kidd, M.R.C.V.S., Hungerford.

Mr. KIDD gave notice that at next meeting he would move a resolution: That it is expedient for the welfare and encouragement of the members of the Royal College of Veterinary Surgeons that they have free and unlimited choice in the selection of members of the profession to serve on the Council. The members of this Association, therefore, petition the President and Members of Council to take the necessary steps to have clause nine rescinded of Supplementary Charter, granted by Her Majesty the Queen on the 23rd day of August, 1876 (as inserted on page 31 of Register).

Mr. SIMPSON (Maidenhead) introduced the following subject for discussion:—

Would Government Assistance in Regard to the Breeding of Horses tend to encourage Horse-breeders in this country?

Mr. President and Gentlemen,—You are aware that by the rules of this association any member may be called upon by the President to introduce a subject for discussion at our meetings, and it is in obedience to the request of the President that I have prepared a short paper, which, with your indulgence, I will read and ask you to discuss at this meeting.

The subject I have chosen is one of immense national importance, as well as one possessing great interest to us as veterinary surgeons, and on

that account I regret that some more prominent member of the profession has not brought it before your notice, that it might be more ably dealt with. I trust, however, that the discussion which follows the reading of the paper will be of interest to all of us, and that it may be the means of gaining for this subject deeper thought than it has hitherto been favoured with, either by Government or by the individuals who are most immediately concerned.

It is an advantage that this subject should be discussed in a locality which is, I think, essentially a horse-breeding one, and in which reside members of this association who are doubtless in a position to give us valuable information, so that in the end I hope it may be admitted that the short time we have together to-day has not been devoted to the consideration of a subject devoid of interest to a scientific association. Would Government aid in regard to the breeding of horses tend to encourage horse-breeding in this country? This question, though in a somewhat different form, was asked in the year 1873, with the object, more especially, of ascertaining what was the then condition of the country with regard to horses, and its capabilities of supplying any present or future demand; to obtain the desired information, a committee of the House of Lords was appointed to examine witnesses, and to report to the House.

This course possibly was urged upon the Government in consequence of the reported scarcity of horses suitable for army purposes, and the increasing demand by foreign nations for English-bred horses, more particularly mares suitable for stud purposes. The report of this committee appears to have occasioned no alarm, inasmuch as it does not appear to have justified the Government in giving any further consideration to the subject, beyond inducing them to act upon certain recommendations made in that report, which were, however, of a very minor character. It is not my intention to refer further to the proceedings of that committee, until I have brought before your notice other points of interest with regard to my subject.

In the first place, I propose to remind you of the lukewarm interest which the Government of this country has and does evince with regard to this subject, and then to compare that interest with the interest which the governments of other countries have in the matter as regards themselves, and the practical way they have of demonstrating it. Of necessity, I must go somewhat into statistics, but being aware how dry a subject the consideration of figures is, I will promise to be as brief as possible in this respect. I shall then refer to the opinions of practical men competent to give advice in matters of this kind, and whose opinions are worthy of respect. These opinions will refer to what I allege to exist, namely, the scarcity, deficiency of quality, and the increase of unsoundness, as well as of the price, of horses. I will then offer for your consideration and opinion certain schemes which, if adopted, would, in my judgment, tend to remove this unfavourable state of affairs.

The facilities offered, and the encouragement given by our Government to induce owners of mares to breed, may be dealt with very briefly, simply from the fact that it does so little. So far as I am aware, all that is done in England is by very indirect means, and these means do not appear to me to be at all calculated to assist the country in the possession of good racehorses or good country stallions, neither are they calculated to induce the English farmer to retain his best mares, rather than to sell them at a price slightly in excess of their market value to the foreign buyer. Prior to the alteration in the horse taxes, etc., some few years back, those mares used exclusively for breeding purposes were exempt from duty, while for a stallion who actually worked upon the farm, but at the same time covered the mares of his owner, a duty of 10s. 6d. had to be paid, except in those cases where the animal had not reached the age of five years.

Again, a farmer who bred horses for profit, and, perhaps, took one in exchange which he would possibly sell the next week, was charged with the dealer's duty, amounting to £12 10s. per annum.

These manifestly unfair taxes have now been abolished, but it still gave the breeder but scant encouragement to follow his calling. The relief and assistance it gave him, in fact, was so insignificant, that it reminds one of the country squire, who, with an extravagant family, decided that "something must be done to reduce expenditure." Each member of the family declared it impossible to give up his or her pleasures, and at a consultation in which all the members of the family took part, it was decided that, instead of purchasing the *Times* newspaper on the day of its publication, a saving might be effected by hiring that paper on the next day at half the cost. It was, in fact, the old tale of the mountain in labour which brought forth a mouse. I am aware that the sum of 3,200 guineas was granted annually by the Government with a view of improving the breed of racehorses. This sum of money was doled out in sums of a hundred guineas, which amounts were competed for at certain race meetings, such races being known as "The Queen's Guineas." No benefit to anybody, except the owner of an animal who was specially kept to run for these prizes, and who, in the majority of instances, was not good enough to run in first-class company, resulted from this arrangement. This becoming more and more apparent, led to an alteration by which the number of prizes was curtailed, no alteration, however, being made in the amount of the vote. The value of each race being raised to two hundred guineas, the distance to be run being two miles and a half, and the weight to be carried being nine stone. These latter details, however, are, I am informed, under the control of the Master of the Horse, and if this scheme should prove to be as abortive as the previous one, doubtless further alterations will be made with a view to bringing out animals, not only fit to win two-mile-and-a-half races, but those which will be of real benefit to the nation. In my opinion, money given by the Government to be competed for on a racecourse is absolutely wasted, and the withdrawal of Government encouragement which it now gives to racing, would not tend to damp private enterprise, or interfere in any way with the attractions which horse-racing has for the British public.

With the exception, then, of the indirect help I have referred to, it may be fairly said that the Government of this country does nothing to encourage horse-breeding at home, but with regard to India the case is far different. With the sanction of the Secretary of State, stallions are provided for India to the number of 300, with the view of encouraging breeding in that country, and in order, thereby, that the cavalry and artillery stationed there may not suffer from a scarcity of horses. That this latter state of affairs was likely to present itself at one time, appears certain, inasmuch as it was thought necessary to establish large government breeding studs with a view of producing their own army remounts. These establishments were, however, found to be so costly and productive of so little benefit comparatively, that about nine years ago they were broken up, and the system which exists at the present day was then adopted.

I have been unable to refer to any official reports upon this matter, but I am informed that every horse which was turned out of these establishments at three years old (that being the age at which they are considered fit for the ranks in India) cost the Government over a hundred pounds. I do not think surprise need be expressed at these facts, neither do I think that the establishment of similar studs in England would be attended with any better results. These 300 entire horses, to which I have referred, are selected by a competent judge in England, viz., General Thornhill; and are sent to those parts of the country where their services are most likely to be in request. Through the courtesy of the above-named gentleman, I was enabled to obtain all the

information I required with regard to the system of breeding in India, and I was at the same time permitted to inspect some of the horses, which will shortly be sent to that country for stud purposes. There are but two classes of horses sent out, namely, the short-legged, compact thoroughbred, who is in possession of a fair amount of bone, and the Norfolk trotting-horse, with substance and good action. The former, when properly mated, is used with the object of obtaining the cavalry horse, while the latter, with the same care, is relied on for getting the artillery horse. The maximum price allowed to be given for these stallions in England is £350. These horses do not travel the country, but one of each class is stationed in different places, care being taken to select those localities which are easy of access for the owners of mares. It is estimated that each stallion will cover fifty mares; thus, should only three-fourths of the mares prove to be foal producers, nearly 12,000 animals would be added annually to the stock of horses in the country by Government aid alone. The system throughout appears to give satisfaction to all. A staff of inspectors is maintained, at the head of which is a veterinary surgeon. Owners of mares who desire to have the services of these horses request that they may be inspected by one or more of the staff, and this is done without charge. If they are considered suitable for breeding purposes—that is to say, they must be of a certain size, they must possess some amount of appearance, and what is of the greatest importance, be free of hereditary disease—a mark is placed upon them, and the possession of that mark entitles them to the services of any of the Government stallions in the country, free of cost. The Government have no claim whatever on the produce, but it takes its chance with other buyers when the animal is fit for the ranks, which, as I have said, in India is at three years old. So essential is it considered that every encouragement should be given to the production of all animals suitable for army purposes in that country, that French stallion donkeys are now being sent there for the purpose of crossing them with the mares, and with a view of obtaining thereby sizeable and active mules. I had the opportunity of inspecting some of the French donkeys which will be sent to India with the next consignment of thoroughbred and Norfolk stallions, and much as I am prejudiced against donkeys, I cannot but admit that they are excellent specimens of their kind.

Time will not permit me to take more than a hasty glance at the system adopted by the Governments of other countries with the view of keeping up their horse supply, and encouraging horse-breeding as a profitable employment. It appears from an official report sent from the British Embassy at Vienna, in 1873, that the breeding of horses is largely and systematically encouraged by the Governments of Austria and of Hungary. The arrangements in each country are under the control of the Ministries of Agriculture. The Hungarian Government that year were possessed of 1,786 country stallions, and from a letter which I received a few days ago from Buda Pesth, in answer to some inquiries of mine upon the subject, I find that this number has been augmented year by year, until at the present day there are in that country 2,155 public stallions—870 of which are English, while the Austrian Government in 1873 possessed 1,600 stallions, and doubtless these numbers have been augmented in the same proportion as those in Hungary. In both of these countries, since the latter part of the last century, horse stud establishments have been maintained, at each of which there are stationed from ten to twenty stallions and 200 to 400 mares. In addition to this, a large proportion of the remaining stallions are sent into different parts of the country, for serving the mares of those who care to take advantage of their presence.

In some cases no charge is made for the services of the horse, while in others a fee varying from two shillings to ten shillings has to be paid,

according to the quality of the horse, but in the case of every mare covered by Government stallions, approval of her fitness to be so used has to be obtained of those in charge of the stallion depôts. The Government does not retain any lien upon the produce thus obtained, and it seeks further to stimulate the breeding of horses by giving prizes to owners of the best stock at the annual horse-shows which are held in every country district. In the year I am now referring to (1873) no less than two thousand pounds were given with this object in the Austrian Provinces. The Government also subsidises the owners of covering stallions for each such horse examined and approved by them for breeding purposes. The stallion has to be produced annually, and from ten to thirty pounds is then paid on his account. The means taken by the Prussian Government to encourage horse-breeding are as follows:—1st. The establishment of three principal breeding studs, intended in the first instance for the supply of the Royal stables with horses, and for the production of covering stallions for the country studs. 2nd. The establishment of depôts for covering stallions. 3rd. Giving prizes to qualified stallions kept by private persons; to good brood mares and foals. 4th. Granting loans bearing no interest to private associations for the purchase of stallions. 5th. State assistance in addition to the stakes at race-meetings. 6th. Assistance in the shape of money granted to parishes for the maintenance of pasture lands for young horses.

The first stud established in Prussia was in the year 1732. The country studs are simply depôts of covering stallions purchased by the State, especially in Germany, as an encouragement to private breeders. There are about twelve of these studs, containing in all about 2000 stallions. From these studs the stallions are distributed annually, at the proper season, throughout the country, the selection of places being entirely at the discretion of the director of the district stud, and the horses are quartered on country proprietors who take an interest in horse-breeding, and who are therefore willing to assist in the object desired, the animals being at all times under charge of servants from the Government establishments. It does not appear that the services of these stallions are gratuitous, a fee of from three shillings to eighteen shillings being charged to each mare for service, according to the quality of the stallion. In the Hanoverian and Hessian studs the fee is invariably three shillings, but on the birth of the foal the owner of the mare is called upon to pay a foal-fee of from six shillings to twelve shillings, according to the quality of the sire. About 2000 pounds is the sum granted annually by the Government in aid of prizes for good stallions in private hands and for good brood mares and produce. The results are reported to be satisfactory, inasmuch as it gives encouragement to peasant horse-breeders to continue their calling. The manner in which private horse associations are assisted by the Government is as follows:—Loans are granted, repayable by instalments in from four to six years without interest, for the purchase of stallions. The loans granted under this head vary from £150 to £225. There are certain rules to be observed by these associations as a guarantee that there will be employment for each stallion, and neglect of the stipulated conditions involves forfeiture of the privilege of paying by instalments. Considerable encouragement is given at race-meetings, no less a sum than £7650 being set apart for this purpose. The sum granted in aid of the maintenance of grazing grounds for foals is but small, amounting only to about £150 per annum. It may with truth be said that it would be hardly possible for the Government of any country to do more in regard to the encouragement of horse-breeding, but the inducements offered are somewhat counteracted by the system which, in England, would possibly be considered oppressive—thus, every horse in Prussia is available for the public service in the event of war. Every horse born is registered, and can be taken at a

price fixed by a committee appointed for the purpose. An officer commanding a regiment of cavalry in Prussia has said that, as far as horses were concerned, he was satisfied regiments could be completed on the third day after mobilization. It is exceedingly doubtful whether this could be said if the Prussian Government did not give practical proof of their appreciation of the necessity of encouraging horse-breeding in every possible way, and I shall have occasion later on to compare the statement of this officer with the answer which was given by a competent authority to a question submitted to him by the committee of the House of Lords when inquiring into this subject in England.

In order to facilitate, as far as possible, private enterprise in the breeding and improvement of horses, the Italian Government has depôts, in which there are about 350 stallions of the best breeds, the greater part foreign, and which, in consideration of a small fee, serve mares belonging to private individuals. As the system of stationing stallions and giving prizes in money, both at race-meetings and at horse-shows, appears to be somewhat similar to that adopted in other countries, it will be unnecessary for me to enter into further details so far as Italy is concerned, except that I might say there are depôts in that country for the rearing (not breeding) of army remounts. These depôts are annually filled with young horses, which are bought at three years old, and allowed to remain at pasture in the depôts until four-and-a-half years old. When the horses have attained this age, they are broken, and are drafted every autumn to the different regiments of cavalry and artillery.

In France, from 1500 to 2000 stallions are kept by the State, which cover mares around their different stations at very low prices. Stallions of private individuals, approved by the State, are exempt from all tax, while those which are *not* approved of pay a tax of 400 francs per annum. One million two hundred thousand francs are distributed annually amongst the population which keep horses, but principally to the owners of good brood-mares. Important prizes are given at the principal race-meetings throughout France. A reserve, for the artillery, of 15,000 horses is kept up, and lent gratis to farmers for agricultural work. These animals would, however, at once be called in by the Government upon a declaration of war. Private societies also give prizes at race-meetings and horse-shows. As, however, I have hitherto avoided referring to aid, other than State aid, I need not enter further into particulars of this class of horse-breeding encouragement, as it would be unfair for any Government, whether in England or abroad, to take credit for the enterprise of societies or of private individuals. Unfortunately I have been unable to ascertain how far other European countries concern themselves in this matter, but I think sufficient has been said to enable you to decide whether England does take that practical interest, not only in encouraging breeding, but in offering those inducements to produce sound and valuable stock which other countries do.

I propose now to refer briefly to what I have alleged does exist, namely, the scarcity of horses, want of quality in those we do possess, increasing unsoundness, and increase of price as compared with twenty-five years ago. Unless I refer to these points, my question may be answered thus: "You have failed to show us that the time has arrived for the necessity of Government interference in this matter." From the facts which I propose to lay before you, and from your daily personal observations, you will doubtless experience no difficulty in arriving at a conclusion which may or may not agree with my own.

As to Scarcity.

In the year 1841 it appears to have been only necessary that we should import from abroad 339 horses, while we could at the same time afford from

our stock in England 4538 horses, and this latter number was actually sent abroad in that year. About twenty years later—I refer to the date of the Crimean war—we appear to have been none too well provided for an emergency as regards horses, as in one year (1853) we had to import no less than 6819. I have before me a return, showing that in 1872 no less than 12,618 horses were imported by us, and you will judge of the proportion which this import bears to the total number of horses in Great Britain, when I tell you that the total of duty-paying horses was 859,358. Now, if we still maintain at this day what we always have maintained, namely, that there is a superiority in the English horse over the foreigner, why is it necessary that we should resort to foreign countries for such large supplies? If we do not import them because they are better than our own, it can be for one other reason only, namely, that our home supply is insufficient. We were, in fact, driven to this course simply because there was a scarcity in our own country. I have, perhaps, selected an exceptional year (1872), and the importation of so large a number may be accounted for by the fact that in 1870-1 we were large exporters of horses, owing to the great demand for army horses for the Franco-German War, and that event doubtless had a very marked effect upon this class of export. The scarcity does not appear to be confined to the hunter and half-bred harness classes. The following figures not only prove this, but show unmistakably that breeding was not carried on very extensively in the year named. The returns laid before Parliament show that the decrease in the number of brood-mares, unbroken horses, and horses used for agricultural purposes *in England alone*, was 15,159—in 1872 as compared with 1870—or over 7,500 per annum.

(*To be continued.*)

SCOTTISH VETERINARY SOCIETIES.

THE third annual meeting of the members of the Scottish veterinary societies took place on December 24th, in the hall of the Christian Institute. There were representatives present from the Scottish Metropolitan Veterinary Medical Association, the Scottish Central Veterinary Medical Association, the West of Scotland Veterinary Medical Association, the Society for the Prevention of Cruelty to Animals, and many gentlemen interested in the proper treatment of horses. Deputations from the North of England and Border Counties Veterinary Medical Association were also present. Professor Walley, President of the Royal College of Veterinary Surgeons, occupied the chair. Among the gentlemen in attendance were—Professors Williams, Edinburgh; M'Call, Glasgow; Lewis, Edinburgh; Dr. Limont, Glasgow; Messrs. Campbell, Kirkcudbright; Rutherford, Edinburgh; Greaves, Manchester; Cameron, Berwick-on-Tweed; Miller, Dublin; Connochie, Selkirk; Brock, Glasgow; Macfarlane, Greenock; Robb, Glasgow; Cunningham, Slateford; Major Lyons, Glasgow; Rev. D. Brown, Glasgow; Mr. Elphick, Newcastle-on-Tyne; Messrs. Robinson, Greenock; Pottie, Paisley; etc., etc. Apologies for absence were intimated from Professor Robinson, London; Captain Russell, Grantham; Mr. Simpson, Windsor; Mr. W. A. Taylor, Manchester; Mr. Borthwick, Mr. Finlay Dun, and other gentlemen.

The CHAIRMAN said this was the second time the society had held its annual meeting in Glasgow. The object of such gatherings was to discuss subjects interesting to the veterinary profession, and to band them together for a variety of purposes. By the arrangements made for the present meeting they would first hear a paper from Mr. Anderson, jun., on the subject of "Cruelty to Animals: Its Prevention, and Cruelty Prosecutions," a subject that they were all deeply interested in, and he might add that the profession

had as much at heart the prevention of that cruelty as the societies that had taken up the matter specially. (Hear, hear.)

Mr. ANDERSON at the outset said his object in taking up such a subject was to try and bring about a more harmonious feeling than at present existed between the veterinary profession and the Society for the Prevention of Cruelty to Animals. The profession, he claimed, was not antagonistic to that society—in fact they were the very reverse—and he felt convinced that no good could result from the efforts of the society unless the profession went hand-in-hand with it. He felt convinced that the practitioners would be only too glad to assist the society in its laudable attempts to suppress and prevent cruelty to animals, provided the society would not plunge so recklessly into prosecutions which were bringing ridicule and scorn upon all connected with it. It was the first duty of a veterinary practitioner to be humane. (Hear, hear.) As trained to the profession, they were able to detect the slightest deviation from good health in animals, and decide upon the kind of treatment they ought to undergo. He held that the alleviation of pain should be their first great object. They had often very painful surgical operations to perform, but there was no excuse for their inflicting great pain on their dumb patients so long as they could obtain chloroform or other anæsthetics, and he would take the present opportunity of urging that these blessed agents should be more plentifully used than at present. Love for animals should be imbued into every child, and taught in every school, and young people found guilty of acts of cruelty towards animals should be smartly punished. Bad drivers, and persons unfit to be entrusted with the charge of horses, often caused the poor animals a great deal of suffering, and he thought that railway and tramway companies should see that all their servants took proper care of the animals entrusted to their charge. In Glasgow, owing to competition and low rates, horses were often made to draw loads unreasonably heavy, which was gross cruelty. A maximum weight should be fixed by the magistrates—say forty-five cwt.—and any one putting on more should be treated as an offender. The work put upon horses in Glasgow was just a species of slow murder, and they lasted on the average for not more than five or six years. Fifty per cent. of the mortality among horses was due to ill usage, injudicious feeding, and overwork. The hard-paved streets were very trying to horses, but in a city that could not be avoided, yet the animals could be saved a great deal of pain and liability to accidents by a plentiful use of sand. There were many acts of cruelty perpetrated in our midst which could not be reached by the society without the aid of the veterinary surgeons, such as starvation, exposure, over-driving, drugging, and operations performed by unskilled hands, needless operations, and, worst of all, operations performed for the purpose of deceiving and defrauding the public. He then called attention to an increasing malpractice, particularly on the part of Irish horse-dealers—that of pulling out the milk or temporary teeth of horses, in order to make young animals appear older. An effort, he urged, ought to be made to put a stop to this at once, not only to protect the public from being defrauded, but to put a stop to such barbarous cruelty, and prevent a young animal being put to hard work at too early an age. Another trick attempted by dealers, that of "bishoping" the teeth to make old animals look young, was an offence that ought to be treated criminally—in fact, he considered that any painful operation, whether performed for the cure of disease or otherwise, if not executed by a veterinary surgeon, or under his direction, the operator should be prosecuted. Any unnecessary pain inflicted intentionally was an act of cruelty, and it was the duty of the public to report all cases of cruelty to the proper authorities, and be prepared, if necessary, to come forward and give evidence. The Royal Society for the Prevention of Cruelty to Animals was an institution that they were all entitled to be proud

of, and they were attached to it by ties of love and duty which could only be loosened by the over-zeal and bigotry into which he was afraid the managers and office-bearers were swiftly drifting. He blamed a few men connected with their profession for interfering with their rights, and said these practitioners ought to be more careful in giving advice in regard to prosecutions. Withal, the Royal Society was deserving of admiration, for the office-bearers, in seeking to protect animals, always took the advice of veterinary surgeons, thereby recognising them to be responsible authorities. He was sorry to say that all the provincial societies did not take that precaution—at all events, the Glasgow Society did not, for it ignored veterinary evidence both *pro* and *con*. He charged its office-bearers, and a few stolid sentimentalists who acted as its managers, with converting it into a persecuting instead of a prosecuting society. He did so, he hoped, in presence of a number of these gentlemen, and he courted their contradiction. He did not desire, by anything he might say, to frustrate the prosperity of the society, but rather to further its interests on a true and honest basis. A few years ago the society appointed Professor M'Queen to be their veterinary adviser, and no prosecution was proceeded with unless it was sanctioned by the professor. This arrangement gave general satisfaction; but because Professor M'Queen had evidently been too honest, or would not give in to every imaginary case that the officers might book, his services were rather abruptly dispensed with. The public was now at the mercy of a few of these uneducated, ignorant officers—men drafted from the police or the army, a most unsuitable source to choose them from. At the head of this persecuting band was a whimsical military officer, who was, he understood, the acting secretary, and drew a salary, or rather an honorary fee, from the subscribers for his services. It was this gentleman who read over the complaints made by the officers, and handed the cases over to the Procurator-Fiscal. He then went on to criticise the way in which the officers went about their work, a horse being stopped on the street and examined and no complaint being made for some weeks afterwards. This delay considerably hampered the owner of the horse in getting up his defence. The evidence of veterinary surgeons and respectable citizens for the defence was usually discarded by the magistrates trying such cases, in favour of that of the officers of the society. It was sometimes painful to listen to these men giving evidence. He then quoted a case against Mr. John Bryson, a respectable contractor, owning upwards of fifty horses, when he (Mr. Anderson) and Mr. Peddie, M.R.C.V.S., gave evidence to the effect that the horse, although an old one, was quite fit for ordinary cart-work. Other seven non-professional witnesses testified that the animal was fit for work; yet in the face of all this evidence the justices, acting on the advice of Mr. George Gray, the assessor, fined Mr. Bryson £3 3s. Since then Mr. Bryson had been at the expense of having the animal examined by Professor M'Call, and another veterinary surgeon, and both of them had declared the animal to be in a perfectly fit state for work. He thought the justices and magistrates should show more consideration for the evidence of qualified practitioners.

The CHAIRMAN said that while he could not hold himself responsible for any opinions that might be expressed by members, he was afraid that Mr. Anderson had some grounds for the charges he had made, but he would rather have heard a paper without such charges. He must confess that he had always found the officers of the society ready to take the advice of a veterinary surgeon when tendered to them in cruelty cases. The system of making horses said to be lame walk long distances to be examined, and the mode of notifying charges to the owners, ought to be amended. As to fixing a load, it would, he was afraid, be rather a difficult thing to accomplish. The custom of dishorning cattle and the overstocking of the udders of cows were matters that the society might take up with advantage.

Professor M'CALL said he agreed with a great deal of what Mr. Anderson had said, but he was sorry that he had made strictures in regard to the office-bearers of the Glasgow Society for the Prevention of Cruelty to Animals, and their officials. No one connected with it, he felt sure, had any private interest to serve, and he was sorry that Mr. Anderson had made remarks which undoubtedly would give great offence, and were not likely to help to bring about that address they all wished for. The officers were paid a fixed salary, and had no interest in bringing up a man in order to obtain a conviction. He was of opinion that before any man was taken into Court his horse should be examined by professional men. He knew that Professor M'Queen as long as he acted gave universal satisfaction, and now that that gentleman's services had been dispensed with great dissatisfaction prevailed. He hoped that the speakers who had to follow would refrain from saying anything personal, or imputing personal motives to the society. (Hear, hear.)

Mr. M'DOUGALL, Helensburgh, was of opinion that in a court of law, when a case of cruelty was being tried, the evidence of a veterinary surgeon should have greater weight than that given by persons who were not experts.

Mr. J. C. BURNS spoke of the good work which the Society for the Prevention of Cruelty to Animals had done since its formation in Glasgow.

Mr. ELPHICK expressed the opinion that no case of cruelty ought to be prosecuted by the society until a veterinary surgeon had reported upon it.

Mr. GREAVES and Mr. CUNNINGHAM thought that some amicable arrangement might be come to between the Society for the Prevention of Cruelty to Animals and the Veterinary Medical Association, which would tend to the more harmonious working of both.

Professor M'QUEEN said the reason given by the Society for the Prevention of Cruelty to Animals for dispensing with his services was that the Procurator-Fiscal had declined to accept his certificates any further as evidence. He had not yet received sufficent proof that that statement was true, and he left it to the meeting to judge whether a procurator-fiscal, having received his certificates for four years, would all at once come to the conclusion that they were entirely useless. He informed Major Lysons that he did not believe the statement, but had heard nothing further about it. While, however, he was no longer connected with the society, he did not agree with Mr. Anderson in many of his statements, and it would be a mistake if it went forth that they did not appreciate the decisions of the magistrates or justices. While veterinary surgeon to the society his chief difficulty in obtaining convictions in cases of cruelty was owing to the fact that he was opposed by the other veterinary surgeons. He hoped there would be no resolution passed condemning the action of the Glasgow Society for the Prevention of Cruelty to Animals.

Major LYSONS said he was sorry the discussion had arisen, not from love of animals, but from animus on the part of Mr. Anderson. He had letters to show this animus on the part of that gentleman, because a certain thing happened. He was not going to defend the society at present ; it would be the duty of the office-bearers to deal with the charges which had been made by Mr. Anderson. It was because the veterinary surgeons could not agree amongst themselves that the society which he represented could not go forward hand in hand, as they would like to do, with the society of which Mr. Anderson was a member. One reason of the disagreement was because the veterinary surgeons were not agreed as to what cruelty was. That was a point which they would like to arrive at. He could assure them that the prosecutions were made immediately after the cases were found out, and in many of the cases he several times warned the offenders before the prosecutions were proceeded with. It had always been his desire to be as lenient as possible, and more especially with poor people who were working horses

that ought to be relieved from work. He could instance cases where he had received certificates that horses were quite fit to work, and the horses had been destroyed almost immediately afterwards. If a definition of cruelty was arrived at, the society would only be too glad to avail themselves of assistance from the veterinary surgeons.

Mr. ANDERSON gave a flat contradiction to the statement of Major Lysons, and said he was quite ready to stand by all he had said in his paper.

On the motion of Professor M'CALL, a resolution was passed to the effect that it would be to the advantage of all parties if, before instituting prosecutions against offenders or supposed offenders, the circumstances of each case were laid before a veterinary surgeon, and that no prosecution should be instituted before the opinion of the surgeon had been obtained, the proprietor of the animal being communicated with either personally or by letter.

Another resolution, approving of the work of the Prevention of Cruelty to Animals Association, was approved.*

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* As it is sometimes well to know what the public think of these proceedings, the following leading article from the *Glasgow News*, of December 25th, is given :—

"In the Christian Institute yesterday a number of veterinary surgeons and cartage contractors listened to and applauded an attack on the Glasgow Society for the Prevention of Cruelty to Animals. It is scarcely necessary to say that the speaker, described somewhat vaguely as Mr. Anderson, jun., did not advocate cruelty to animals. On the contrary, he professed to deprecate it, and suggested incidentally some absurd prohibitive legislation, enacting the maximum load which a horse should be permitted to draw in a city street. In advocating this proposal, which is too ridiculous for criticism, and is much as if the Legislature were asked to measure a man's capacity for work and set a maximum thereto, he advanced certain facts anent the wear and tear of city horses which, if true, are startling. Mr. Anderson, junior—we cling to the 'junior' as in some way distinguishing our hero from the obscure mass of ordinary Andersons—asserted, without contradiction, to an audience of experts, that the life of a draught-horse in the city is only from five to six years, that contractors habitually overwork their horses for profit, and that they systematically use up old and buy new horses rather than spare and maintain in health these useful servants of man. By overwork, by hard treatment, and by injudicious feeding, the life of the horse is cut short. This is a serious indictment to bring against any class ; and it might be assumed that having brought it, Mr. Anderson would have proceeded to advocate the claims of the society which exists to check such wanton and selfish cruelty. But nothing of the sort happened. On the contrary, the speaker launched into a bitter personal attack on the society of which Major Lysons is the active guide. He accused the society of instigating reckless prosecutions which covered it with ridicule and scorn. He jeered at the gallant major as 'a whimsical military officer.' He railed at the officials as uneducated, ignorant persons, unable to speak the English language, and as a climax he denounced them as ex-policemen, ex-army farriers, and military pensioners, drawn from a class in which the virtues of integrity, truthfulness, and mercy are conspicuously lacking. Nor did he stop there, in what may be called, in Malayan fashion, his run-a-muck. He asserted not only that the Society for the Prevention of Cruelty to Animals despised the evidence of veterinary surgeons, but that magistrates, paid and unpaid, rejected it without consideration. In a word, he charged the contractors with calculated cruelty, the society with reckless incompetency, and the magistracy with malicious prejudice ; and, for a remedy, he suggested a legal definition of disease and cruelty, and the more frequent employment of veterinary surgeons as judicial experts—of course, with experts' fees.

Professor WALLEY then intimated that the next business was to nominate candidates for election to the Council of the Royal College of Veterinary Surgeons.

Mr. RUTHERFORD suggested that Mr. Robinson, sen., Greenock, should be nominated, with Professor Walley and Mr. Mulvey. This, on being formally proposed by Professor WILLIAMS and seconded by Professor MCCALL, was carried.

Mr. ELPHICK proposed that circulars should be sent this year to all the members of the profession, and that the societies interested in the election should defray the expense as formerly. This was seconded by Professor WILLIAMS, and agreed to.

The Dinner.

In the evening the members of the society and their friends dined together in M'Lean's Hotel, St. Vincent Street. Mr. Campbell, of Kircudbright, occupied the chair, and Professor Walley, of Edinburgh, was the croupier. The usual loyal and patriotic toasts were proposed, and warmly responded to.

Mr. RUTHERFORD proposed, "Success to the Conjoint Meeting," and said it had been found that the members of the individual societies had very little

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"Mr. Anderson has made the serious mistake of carrying the 'polemical language' of politics into the affairs of daily life. It is permissible, by our code of political morals, to accuse great, eminent, and respected statesmen of the crimes with which this veterinary surgeon charged the magistracy, and, by implication, all policemen and soldiers. It is not permissible to make, save in specific instances, such accusations against men of whom they might be believed. Lest, then, some harm should really be done to the good work of the Society for the Prevention of Cruelty to Animals, it may be well to point out where the accusations fail; but before doing so it should be observed that the reason why this wild talk calls for comment is, that it was frequently applauded by an audience of contractors and veterinary surgeons, who, in so far, seemed to share in the speaker's animus. There is no reason why the society, which has to do a great work on a small income, should employ a veterinary surgeon to pronounce on each case which it recommends for prosecution. There are many reasons which militate against such a course. If an officer of the society sees a horse suffering from a sore in the street, he has no authority to stop the animal, to convey it to a surgeon's yard, or to demand entrance to the owner's premises for purposes of medical inspection. Further, an ex-farrier, who has assumably worked amongst horses all his life, is, on the face of it, competent to form an opinion as to whether a horse is being worked cruelly or no. This opinion, it must be remembered, is not a judgment. The circumstances have to be stated to the Procurator-Fiscal, who is not called upon to prosecute unless he chooses. Thereafter the whole evidence must be laid before a magistrate, at which stage the accused person can appear by counsel, cross-examine the witnesses, and lead rebutting evidence. To say that evidence is not considered is to accuse the magistrates of gross neglect of duty. To say that it does not always deserve consideration would perhaps be more true. The tendency of experts called to prove something in the interest of their employers is to represent the truth in a light dangerously bordering on falsehood. It is so in all trades, as when one doctor swears that a man is mad and another that he is sane, or one valuator that a property is worth twenty while another vows that it is worth forty thousand pounds. We remember of a case in which a magistrate having personally examined a horse anent whose sores conflicting expert evidence had been offered, found that these had been disguised with a coating of lamp-black, and felt it his duty to say some very severe things of the witnesses. To say that magistrates refuse to consider the evidence of veterinary surgeons

power in regard to furthering the interests of the profession, and it was, therefore, agreed that they should unite in one large body. The gatherings already held had been of the most successful character, and they might now look upon the society as firmly established, and doing valuable work.

The CHAIRMAN, as representing the West of Scotland Association, replied. Country veterinary surgeons could specially appreciate the benefits to be derived from becoming members of such a society, for they could at all times have an opportunity of consulting the leading professors, and the advice of these gentleman was always frankly and promptly given. He hoped that country practitioners would join the society in much greater numbers. Professor Walley and Mr. Pottie also acknowledged the toast, and expressed the hope that the public would yet come to understand the objects of the society much better.

The other toasts were "The Council of the R.C.V.S.," "The Board of Examiners," "The Veterinary College," "The Veterinary Profession," "The Visitors," etc.

MONTREAL VETERINARY COLLEGE.

THE regular fortnightly meeting of the Montreal Veterinary Medical Association was held in the lecture room of the College on the 29th of November. Mr. M. C. Baker, V.S., President, in the chair.

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is nonsense. To say that they refuse to value it more highly than that of practical men who have seen an animal suffering agony is sense. We prefer to believe in the magistrates' sense rather than their accusers' nonsense.

"There can be no manner of doubt that the Society for the Prevention of Cruelty to Animals is doing a great and good work, and that its officials are animated solely by a zealous desire to do their duty as that duty should be done. Equally there can be no manner of doubt that the attack made upon them last night was unreasonable and unworthy. Yet there never is smoke without fire, and it is probable that the accusations would not have been so well received by an audience of contractors and veterinary surgeons had they been absolutely and entirely groundless. There is always a danger that persons engaged in the search for faults may find these where they do not exist. It is so with specialists of all kinds. A mad doctor, to use the colloquial name, will find the wisest of us insane on the slightest provocation. Certainly few eminent men would escape in safety from a talk on general subjects with some specialists on insanity; while the healthiest lungs or the soundest chest are seldom quite free from defects in the eyes of a doctor who only studies these organs. All men deserve hanging in the eyes of an Old Bailey barrister; and even our smaller sins are very serious indeed when exposed to clerical review. It is within the limits of possibility that Major Lysons' subordinates may sometimes take too tender a view of a horse's sores, or too serious a view of its load. Horses, like men, must sometimes be permitted to strain their powers to the limits of endurance, and like men they may on occasion be permitted to work when they are scarcely fit to do so. These things the officers of the Society for the Prevention of Cruelty to Animals should remember. Their duty is to interfere only in cases of absolute cruelty, and this fact should be impressed on them. In such cases, however, they should fear no criticism. The arguments of the man who has most depreciated them go to prove that there is great need for their energy and watchfulness, and they may rest assured that in all reasonable conditions they have the support and sympathy of the public, whose sincere desire it is that the most docile, useful, and lovable of the servants of man should be protected from the cruelty and cupidity of harsh or thoughtless persons."

A large number of students were present, and also visitors.

Mr. Wilcocks, of Guelph, Ont., was unanimously elected a member.

Mr. MAYOR then communicated a case of Flatulent Colic, which came under his notice last summer, which was treated successfully by the operation of enterotomy or puncture of the intestine.

A discussion followed as to the advisability of following this plan of treatment, and also the risk incurred, but it was ageed that in severe cases it was the most successful treatment.

Mr. E. WALLIS HOARE then read his essay "On Observations on the Examination of Horses as to Soundness." The difference between legal and practical soundness was described, and also how, in the present day, the question of practical soundness was of great importance.

The method of examining horses as to soundness was next described, that of the late Professor Dick being taken as the standard. The various defects likely to be met with were also noticed, particular stress being laid on the question of Spavin and coarse hocks, which, it was shown, were very difficult to define in some cases. The importance of testing for lameness and wind was also dwelt on, and the advisability of always removing the shoes in examining the feet for corns, etc.

The requirements of the veterinary surgeon as an examiner of horses were also noticed, which were stated to be a thorough knowledge of the normal conformation, points, and action of the horse; also quickness in observation and perception, so as at once to detect abnormalities, and a proper routine method of examination.

The importance of practice while at college in this branch of the profession was also urged, showing that it was impossible to obtain the knowledge and skill necessary from books alone.

The importance of the veterinary surgeon being able to ride was also dwelt on, as without this art his knowledge of the action and capabilities of horses was very superficial. This is especially necessary if he practises in a country where many hunters and saddle-horses are bought or sold.

A discussion followed as to the necessity of giving such a rigid examination in every case, but the essayist contended that any part left out would interfere with giving a proper opinion of the horse.

The question of Spavins and coarse hocks was also discussed, and the reasons why Spavins situated far back in the hock were less liable to cause lameness than those in any other part.

After a few remarks from the PRESIDENT, the meeting adjourned.

At the next meeting Mr. Clement will communicate a case of "Excision of a Tumour from the Neck of a Horse," and Mr. Lambe will read an essay on "Horse Shoeing."

E. A. HOARE, *Member of Reporting Committee.*

ROYAL VETERINARY COLLEGE MEDICAL SOCIETY.

THE Second Annual General Meeting of the above society was held in the Theatre of the College on the 13th of October, 1884. The President, Professor Robertson, occupied the chair. There were present twenty-eight student members and sixteen visitors.

The usual routine of business having been gone through, the report on the work done during the past session was read and adopted.

The SECRETARY said that a review of the past work of the Society afforded much matter for congratulation; consequently much pleasure to him to report on the work accomplished. The past session has been in every way a successful one. Our meetings have been well attended and regular; throughout the utmost unanimity has been evinced, and we venture to hope

that the large fund of information which was placed at our disposal has been productive of good and lasting results. I shall not occupy the time of this meeting with any other general remarks, but will at once proceed to the task of recalling what has actually occurred during the year. There have been twenty-one general meetings, with an average attendance of twenty-three members and five visitors.

At the last annual meeting, the following gentlemen were chosen for office :—Assistant Secretary—Mr. Leonard Burghope; Committee—Messrs. Snowball, F. T. Harvey, E. Taylor, Pemberton, Brett, W. R. Walker, Hammond, Haydon, Oliver, Littlewood, Whigham, and E. R. Butler. From these the following were chosen to act as Vice-Presidents :—Messrs. Snowball, Harvey, Taylor, Pemberton, Hammond, and Brett. Mr. Butler was subsequently chosen to fill a vacancy, the Assistant Secretary being *ex officio* Vice-President.

The following essays have been read and debated upon during the session :—

Writer.	*Subject.*
Mr. D. D. SNOWBALL	"Pleuro-pneumonia."
„ HENRY SMITH	"Antiseptics."
„ F. T. HARVEY	"The Graminaceæ."
„ E. E. TAYLOR	"Castration."
„ L. BLENKINSOP, M.R.C.V.S. ...	"Some Notes taken during a Professional Visit to Madrid."
„ E. R. BUTLER	"Calculi."
„ J. BRETT	"Foot-and-mouth Disease."
„ H. L. PEMBERTON	"Parturition."
„ E. W. BAKER, M.R.C.V.S. ...	"Bowel Diseases."
„ E. R. BUTLER	"Legislation for Foot-and-mouth Disease."
„ F. T. HARVEY	"Dietetic Therapeutics."
„ G. W. HAYDON	"Tuberculosis."

The above essays elicited a considerable amount of discussion, and offered a favourable opportunity for interchange of ideas on the part of members. In addition, large numbers of *post-mortem* specimens have been introduced, some of much interest, and for which gentlemen have from time to time received the thanks of the Society.

Sixty-two gentlemen have sought election during the year; but as several have not complied with regulations relating to the payment of subscriptions, the whole are not admitted to the full privileges of membership.

The prizes offered by the Society to successful competitors have been duly awarded, the Committee having asked Mr. Nicholson Almond, of Ongar, Essex, to adjudicate.

In accordance with a suggestion from the general meeting, the Committee have caused to be posted the list of subjects for competition during the coming session of the Society, so as to allow of members utilising the time between terms

The following is the list of prizes which have been awarded during the session, together with the names of the successful competitors :—

1. Silver Medal for the best essay read and defended at the Society's meetings since the last annual meeting, awarded to Mr. Henry Smith, for his essay on "Antiseptics."

Bronze Medal for 2nd do., Mr. E. E. Taylor, essay, "Castration."

2. Silver Medal given by the President for the best essay on "The Dieting of Horses," with special reference to the nutritive value of different foods, either alone or in combination. Mr. F. T. Harvey.

Bronze Medal for the 2nd do., Mr. John Blakeway.

3. Silver Medal for the best dissection of the fore-limb, from the knee down. Mr. R. W. Walker.

4. Silver Medal for the best essay descriptive of the Natural Order "Solanaceæ." Mr. Peter G. Bond.

The Committee have met three times during the year, and have discussed especially the matter of providing a reading-room and library for the Society; and upon this point the President has promised to speak to the meeting. It was resolved that some members who had obtained their diploma and left the College should be reminded by letter that their subscription had not been paid, and that if not forthcoming they would not be admitted to the privilege of membership, and their names would be crossed off the books of the Society. The matter of an Annual Dinner was also discussed, and referred to the meeting. The advisability of limiting the competition on Botany and Chemistry to Class A was questioned, and it was proposed by Mr. Walker, and seconded by Mr. Farmer, that in future it be open to all classes. It was also decided that the matter of awarding a prize where there was only one competitor should be referred to this meeting.

The President, faithful to his post, has placed his whole services at our disposal, and I am sure that long after we have severed our union with the College we shall often take a happy retrospect of the Society's meetings, and certainly there will be no more pleasing or prominent object in our backward vision than the impression of the magnanimity of our President, of his ungrudging zeal, of his hearty entrance into everything which will instruct and gratify us. I think only one meeting has wanted his presence since the formation of the Society, and I need scarcely suggest to you that this means his support and the success of the evening.

In accordance with precedent, certificates of fellowship are due to Messrs. Snowball, H. Smith, F. T. Harvey (when M.R.C.V.S.), E. E. Taylor, E. R. Butler, Brett, and G. W. Haydon (when M.R.C.V.S.).

Certificates of membership are due to all members who have obtained the diploma of the Royal College of Veterinary Surgeons during the year, and may be obtained on application to the Secretary.

The finances of the Society were in a flourishing condition.

The election of office-bearers for the coming session was then proceeded with. Mr. F. T. Harvey was elected to the office of Assistant Secretary. Messrs. Bond, Walker, Haydon, Farmer, Leigh, Lukes, Oliver, McCormack, Sugden, West, C. A. Johns, and Littlewood, were elected as the Committee, and Messrs. Bond, Walker, Farmer, Haydon, Leigh, and Lukes, Vice-Presidents.

The President, after congratulating the Society on its work and position, said that he hoped before long to make an announcement relative to the provision of reading-room accommodation for the members; he had a scheme which was not yet sufficiently elaborated to lay before the meeting.

It was resolved to allow the arrangements for the class A prize to stand as at present, also that the members of the Society should dine together annually if forty names were handed to the Secretary early in November.

Resolutions of thanks to the officers for the past session terminated the meeting.

Army Veterinary Department.

Gazette, December 23rd, 1884.

Veterinary Surgeon on Probation, Harrie Malcolm Maxwell, to be Veterinary Surgeon. Dated 11th June, 1884.

Gazette, December 30th, 1884.

Frank William Sharp, gent., to be Veterinary Surgeon on Probation. Dated 31st December, 1884.

Obituary.

WE regret to have to record the death of Mr. William Leather, of Liverpool, at the early age of 35, the sad event having occurred on the 27th December. After parting with a friend at Lime Street Station, he fell down, and when lifted up, life was extinct. Mr. Leather graduated in 1871, and ten years later became a Fellow by examination. He was President of the Liverpool Veterinary Medical Association during 1882. The melancholy event has caused much regret in Liverpool, where the deceased was held in high esteem, which was shown by the attendance of some hundreds of friends at the funeral.

The death is also reported of John Dollar, M.R.C.V.S., Glasgow, who graduated in 1855; and of T. J. Rippon, Speen, Berks, late Donington, graduated in 1880.

Notes and News.

BLACK QUARTER IN IRELAND.—This disease has caused serious losses among young cattle in the South of Ireland.

RABIES IN VIENNA.—Rabies has been very prevalent in Vienna for some time, and many persons have been bitten by diseased dogs, several of whom (nearly twenty) have died of Hydrophobia.

LIVE STOCK IN NEW SOUTH WALES.—The immensity of the pastoral interests of the Colony may be inferred from the fact that at the close of 1883, during a period of severe drought, it contained 1,646,753 head of oxen, 34,418,488 sheep, 189,050 pigs, and 326,964 horses; the number of stockholders being 38,257.

CONTAGIOUS PLEURO-PNEUMONIA IN THE UNITED STATES.—The Washington Commissioner of Agriculture has submitted to the House a report on the suppression of diseases among domestic animals. The result of an inspection made shows that 561 cattle affected with Pleuro-pneumonia were found in and about New York City and the district of Columbia. Many dairymen in all the large cities where the disease exists have become expert in the management of cattle. As soon as the first symptoms of the disease are seen, the animals are sent to the slaughter-house. The exact number of infected cattle cannot be determined. The report states that this disease was taken into Illinois and Kentucky in the past summer from a herd in Ohio; it had been carried into Ohio by cattle purchased in the vicinity of Baltimore.

GOVERNMENT STALLION SERVICE IN ITALY.—We learn from the November bulletin of the Ministry of Agriculture, Rome, Italy, that the number of stallions in the Government service, in 1884, was 350, of which 345 were actually serving. These are divided between seven main depôts, sub-divided into service stations for the convenience of the inhabitants of the rural districts. These service stations number 198. The amounts charged for service seem ridiculously small, varying from one hundred lire (about £4) to twelve lire (or about 9s.). Only sixty mares out of 13,576 paid the highest rate for service ; seventy-seven paid £2 10s. (sixty lire) ; 282 paid £1 10s. (forty lire) ; 1820 paid £1 (twenty-five lire), and 13,576 paid the lowest rate. The average number of mares served by each horse was 39·35 during the season, the greatest average number served per stallion in any one district being 43·40, and this happens to be in the Pisa district, where all the highest-priced services were had, as well as the greater proportion of the next highest, and where the revenue per horse was by far the largest. The total amount received for the services of these government horses was 203,444 lire (£8138), an average per horse of about £23.

MEDICAL MEDDLING IN NEW SOUTH WALES.—It was announced not long ago in this Journal, that the Government of New South Wales had resolved to prevent the introduction of Rabies by imposing a quarantine of six months on imported dogs. This measure has excited the wrath of some medical men, who evidently, as is so frequently the case when diseases of the lower animals are discussed, know nothing of Rabies, but whose ignorance does not deter them from writing to the newspapers—one declaring that "such a quarantine is a disgrace to those who made it, and stands as a reflection upon every scientific mind capable of advising the Government upon the subject of Rabies." Mr. T. Chalwin, M.R.C.V.S., Adelaide, has picked up the gauntlet thrown down by these gentlemen, and replies to them in the following pithy communication in the newspaper which had published their letters:—" Sir, —I am averse to answering the inconsequent twaddle of a person totally ignorant of the subject on which he writes, but your sub-leader of to-day, relative to the letter of Dr. H. E. Astles, demands from me a few remarks, not as regards your sub-leader, except to state that you do admit there is just a probability of Rabies being brought into the colony ; but upon the strictures of the enlightened doctor. I am in a measure responsible for the quarantining of dogs which arrive here from Europe by steamer or otherwise, having been requested by the chief inspector of stock to advance an opinion on the subject, and which your correspondent characterises 'as a disgrace to those who made it, and stands as a reflection upon every scientific mind capable of advising the Government upon the subject of Rabies.' The study and treatment of dogs comprised a portion of my curriculum, and during many years I made it a specialty, more particularly at the Royal Veterinary College, Camden Town, under the able guidance of the late Professor Varnell. Therefore I may, without egotism, lay claim to a slight knowledge of the ailments incidental to a dog's life. Were my observations alone confirmatory of the existence of 'Rabies canina' remaining latent in animals for months, I am modest enough to admit I should not put them forward as conclusive evidence, but when men like George Fleming, LL.D., F.R.C.V.S., Dr. Burdon Sanderson, and other equally scientific persons, aver that it is possible for animals to resist the incubation of the malady for six, nine, and twelve months, I think Dr. Astles' futile efforts to combat these statements must fall to the ground. It is just possible Dr. Astles has been requested during his practice to diagnose upon some lady's pet pug, and he has mistaken over-feeding, which renders an animal snappish and quarrelsome, but which readily succumbs to a gentle dietary, for a malady like Rabies ; hence he

infers that because in his ignorance of diagnosing between indigestion from overfeeding and the more subtle disease Rabies that it is useless to quarantine. At the most the doctor's remarks are only quotations from authorities; he advances nothing on his own account beyond his kind reflections upon those who are capable of making a correct estimate. Who doubts, as Stonehenge says, 'That a dog has been the faithful companion of man in all parts of the world, and his fidelity and attachment are so remarkable as to have become proverbial'? Does this infer that the animal is not liable to a malignant disease? I should have refrained from inflicting upon your readers this reply, but one cannot escape the flatulent desire of some persons to pronounce upon a subject foreign to their intellect, and silence might be interpreted into admiration.—I am, etc., THOMAS CHALWIN, M.R.C.V.S. Eng.

September 15th, 1884."

Correspondence.

THE ROYAL COLLEGE OF VETERINARY SURGEONS AND ITS EXAMINING BOARD.

SIR,—With many other practical veterinarians, I was glad to see the able and common-sense letter of the Principal Veterinary Surgeon to the Army and Chairman of the Board of Examiners, in last month's issue of the JOURNAL, commenting on the injudicious remarks made in the introductory lectures of two of the Scotch colleges by the professors who addressed the students—remarks which were ill-timed, misplaced, and prejudicial to the common interests of our profession. Early impressions are lasting, and often fatal, and many a young student who sat in those benches will carry, to the day he stands at the examination-table, the idea that the examination, as prescribed by the Royal College of Veterinary Surgeons, is *unfair*, the examiners *unjust*, and the whole institution their common enemy.

I trust the time has not arrived when the Scotch (or, in fact, any) schools are to dictate to the Royal College the standard to which they are to examine their students and what they think should constitute a qualified veterinary surgeon. It is similar to what, from a racing point of view, we call "making an article for your own horse."

It is an admitted fact that we have not the same class of men passing out of the colleges now as fifteen or twenty years ago, even with an extra session and all the scientific advances the profession has made since then. It is not the fault of the teaching, all will admit, nor of the students, for they are better educated as a body, and equally as hard-working; but, as your correspondent, "Reform," in his excellent letter in December number says, "it is due to the fact" that at that time scarcely a student went to college without some previous knowledge of the profession, and had an opportunity, before his *fees were paid*, of finding out the most important of all facts—*if he was suited to the profession he had chosen.*

My experience of over twenty years in the profession is that it is made up of three different classes of men, namely:—First, men who go to the profession for something to do; secondly, men who want an easy way to get a commission in the army; and, thirdly, men who enter the profession from taste, to make a name and a livelihood out of it.

Perhaps, of the three classes, the first are those who do most harm to the profession. They generally are men who are "horsey" inclined; have a little private means or prospects; not enough energy or intellect to become a lawyer, skill or patience to become a doctor, modesty or sanctity to become a parson; and, after three sessions at college, and, perhaps, a summer with

some fashionable practitioner, find themselves fully-fledged veterinary surgeons, with an extensive knowledge of long words and scientific technicalities, but a small knowledge of actual practical work and the thousand and one little details that make the successful practitioner. If they start in practice, they commence by advertising for a *first-class* one, or a partnership in an old-established concern, requiring a strict return of the practice for the previous six years, and knowing nothing whatever about it all the time. When they have secured the good old business and settled, it does not improve; and the old customers find the "new man" not as reliable as their old friend, his predecessor, who has done their business for, perhaps, a quarter of a century, and is retiring from ill-health, or, in other words, "broken down in harness." The "new man" finds the old business not up to his anticipations, lets it dwindle down and go away, and ultimately declares he has "been done," and the profession an uphill game for a gentleman.

The second class to which I refer to, go to join the profession with the view to obtain a commission in the army, and "see life," as they say. They are generally connections of some army man, who has seen what a nice berth the "regimental vet." has; how he is made the pet of the corps, with any amount of horses to ride, and apparently nothing to do. In the abstract, it looks enticing to the embryo warrior, who has longed for a combatant commission, but cannot pass into Sandhurst or trudge through a militia preparation, and has probably wasted two or three years thinking of it. He suddenly makes up his mind to become a "vet.," presents himself at one of our colleges, attends every lecture, dresses well, and, in fact, is a "swell student," gets through his three sessions, obtains his diploma, and, a week or two after, presents himself at Woolwich, and in the old days, in nine cases out of ten, passed, and was duly gazetted. And what is the result? A few months after he is posted to a regiment or battery, and joins apparently under the best circumstances, being received with that kindness which, with very few exceptions, is uniform in the British Army. Every officer is ready to help him, and all seems to be plain sailing. Suddenly a batch of remounts is to be bought, or a few bad cases turn up that require practical skill in their treatment. The colonel, who is probably a man who has lived half his life amongst horsemen and horses, finds his "new vet." a complete amateur. He calls a remount a *bay* which is a *chestnut*, makes out, according to his idea, all the horses wrong in their age, and finally winds up by rejecting some of the very best remounts for some technical imaginary unsoundness, which the colonel and dealer have never heard of, and declares his examination incomplete, in consequence of the young troopers not allowing him to handle their hocks, or be ridden for their wind.

A few years since, when serving at Aldershot, two of these men were sent there and placed in charge of some artillery, and I had to share a portion of my infirmary with them. It was painful to see the complete want of knowledge they displayed in the simple little details of infirmary routine. On one occasion, a troop-horse was to be thrown down for some minor operation. There was an unusual stir in the infirmary all the morning. A bed big enough to exercise a troop on was put down, and, after lunch, the gates were closed. A small army of farriers, smiths, and fatigue men were there with the unfortunate patient. There was first a consultation between the two gentlemen as to which leg the master-hobble should be put on. One said the fore-leg, the other the hind; and the director of the latter, being a fortnight the senior in the service of the other, carried the day, and the horse was thrown, or, rather pulled, on to his head and secured. The operation lasted nearly an hour. I took particular pains to ask both these men afterwards if they had not seen horses cast before, and they honestly told me

they went direct from school to college, where, they said, they saw dozens of horses thrown down, and had watched operation after operation; but, from false pride, they were ashamed to show their ignorance before their fellow-students, and never had a chance of putting on a set of hobbles until that day with their own hands. And it is this false pride which upsets Professor McCall's theory of "putting the cart before the horse." Does he mean to tell any common-sense, practical man that, once a young student becomes a M.R.C.V.S., he will stoop to learn the little common details of his profession? No; he simply dare not do it in the eyes of his friends, who think, once he is a member, he should be above those things; and, even if he did, he could not do them the same as if he were only plain Charley Jones or Tom Smith.

The third class to which I refer are the men whom we have, in most instances, to select our successful practitioners from, either in the army or in civil life. They join the profession to win their way, and nine out of every ten are men who, before they go to college, have had some training in the profession—some as apprentices, some as assistants; some bred in it, and a few, like Topsy in "Uncle Tom's Cabin," "growed up to it."

It would be unjust to say that every successful veterinary surgeon must have served an apprenticeship. I have known several who have not done so; but they have invariably been assisted with plenty of natural taste and talent for the profession, besides being lovers of animals.

The subject referred to by one of the lecturers, of having teachers as examiners, would be most unwise. Examiners should be completely independent; and there is nothing, to my mind, which would make a practical examiner more uncomfortable than to have a teacher at his elbow bursting with advanced scientific lore and technicalities, with a readiness to pronounce on a good or a bad man before he almost came to the table. I well recollect, in the old days of Clyde Street, the good old lady who would often give a helping hand to one of her favourites a day or two before the examinations, if chance offered, by declaring to some of the examiners there was a "poor wee laddie, with a widèd mother," who worked hard through the session, and *should get through;* and he generally did. Some of those men would make a poor show at the matriculation now, and knew more about "pointing and driving" a "large six" than Lindley Murray. Some of them I have followed in their careers; they went back to their districts, settled down into hard-working, useful practitioners, and have done well.

In the Council we have a wise representative body, who will hear fully Professor McCall's grievances against the government of the profession—a far more suitable platform for their discussion than the class-room, and where each side can be fairly heard. It would be better, perhaps, to have the nationality of the Council mixed; but, for myself, I am more a believer in *work* than *words*, and I fear the latter preponderate in the Scotch and the Irish.

WM. PALLIN.

Athgarvan Lodge, Curragh, Ireland.

VETERINARY EDUCATION.

SIR,—I trust you will allow me some of your valuable space, in answer to Mr. J. B. Gresswell's exculpation of Professor Brown. I grant that Professors Robertson and Brown possess different powers of imparting their knowledge to a class, but I cannot grant that the latter does his best in his own special department; although I am sure every student, past and present,

will endorse my opinion when I say that Professor Robertson fulfils the duties in the equine department, and very materially assists the students in cattle pathology, by his practical demonstrations. I can assure Mr. Gresswell that it is not only drenching cows, passing probangs, and all the other minor operations, but many other useful and practical things, such as ages, parturition, breeds of cattle and sheep, position of organs, vessels, nerves, etc., and many diseases.

I may here remark, Sir, that Professor Brown crammed all included in the diseases of the generative system (which means the whole of your work on "Veterinary Obstetrics") into two lectures, of forty-five minutes each. Now, I ask, is this fair to the student? What is a lecturer for, unless it is to mention all diseases, and give his experience of such as he has seen, and offer his opinions on the pathology, etc., of those he has not had experience in? If we are to fall back on books for everything, we can do away with the lecturer, which, I think, in the present instance, would not materially affect the students. Books are all very well, but they need some explanation; and who else should give this but the teacher? Books, in my humble opinion, are only, or should only be, of use to refresh the mind of the student, or give him the opinions of the different writers. I gave the list of his lectures to show how many diseases were left out, and how, in most cases, great stress was laid upon history and legislation, at the expense (to the student) of symptomatology and *post-mortem* appearances, as well as treatment. On perusing the list, I note the following diseases not mentioned, nor were they in his lectures, although he had "power to" do so :—

Croup and Diphtheria, Simple Fever, Cow-pox, Louping-ill and Braxy; Mange in the ox and dog; the bone diseases, *e.g.*, Mollities and Fragilitas-Ossium, Osteo-sarcoma, Rickets, Hoose; Pyæmia and Septicæmia, Endocarditis and other diseases of the valves and vessels leading to and from the heart; no nervous diseases; ten minutes to the organs of vision; Tumours, Nephritis, and Cystitis, different forms of; no diseases of the male generative system, or of the female ditto; no mention is made of the different forms of Metritis (all being classed as Milk Fever); Vaginitis and Leucorrhœa are not mentioned; causes of sterility in both male and female are not spoken of; Ovarian Dropsy, Rheumatism, and a host of other things are forgotten; skin diseases receive little or no attention; Ringworm, in its two different forms, was absent.

Now, as to Professor Brown sparing no pains to procure specimens of diseased organs, I think I can run over all the fresh ones he showed us—one of Tuberculosis, two of Pleuro-pneumonia Contagiosa, and, I think, another of Grey Hepatization of the lung from Pneumonia. Surely other diseases were frequent enough at the time for Professor Brown to have procured specimens, if he had spared no pains.

In winding up, I must apologise for trespassing on your space, and saying, as a moral, "from those whom we expect the most we often get the least."

"A Late London Student."

Sir,—Allow me a small space for a few brief remarks in reference to the contents of your last issue.

A stranger taking up the number might be pardoned if he asked himself the question, "Is this the year 1884, or is it 1774?" I say he might be pardoned for asking such a question, looking at the nature and scope of much of the kindly and puerile advice anent the education of the veterinary student contained therein.

Some of those who think it their duty to make such remarks seem to forget that it is a simple act of honesty, when a charge is made against any

class of persons or institutions, to state boldly and distinctly that the charge is intended to apply *all round*, or only to a *particular person or institution.*

Personally, I shall esteem it a favour if, when such charges are made in the future, those who make them will perform this simple act of honesty and justice. THOMAS WALLEY, Principal.

Royal (Dick's) Veterinary College, *December 20th.*

VALUE OF SUBJECTS TAUGHT THE VETERINARY STUDENT.

SIR,—Carefully scanning the article contributed to the December No. of your Journal by Mr. Greaves, it struck me he was attempting to exhibit to the members of the profession his fitness to fill the position on the Examining Board with which the Council have lately honoured him. In doing this I consider he has acted rightly; for we certainly have no evidence of his capacity beyond a few articles contributed to our professional journal—which, by the way, speaking particularly for the recent ones, are hardly models of modern pathology. He seems to have been struck with the extreme difficulty of standing in the portals of the veterinary profession, and complains or laments that the students cannot be seen by the examiners to perform "the scores of operations" for which they are obliged to vouch. He here appears to suggest a certificate from a veterinary surgeon as a way out of the difficulty, and a guarantee for the pupil being a competent operator. Let us beware of this method. For my own part, I have every confidence in the honesty of purpose and ability of our examiners, and I do not wish to see their efforts to ascertain the merits of the pupils supplemented or in any way biassed by the opinions of others; let them stand or fall on their examining capabilities. They have been elected by our representatives; let us abide their decision, or demand their removal. Mr. Greaves then goes on to say the student may never have castrated a colt, attended a parturition, or unnerved a horse—that he may even never have seen these practical details performed. Then comes an afterthought—"only the few cases he may happen to have seen at college." Now I have been connected with the Camden Town School for the last eight years, and know something of its internal organisation, and the arrangements made within its walls for continually bringing sick and lame horses under the very noses of the pupils—and, by the way, I should think (and statistics are easily attainable) there are more operations performed within its precincts than in any veterinary infirmary in the United Kingdom, all of which are done openly for the benefit of the pupils, who may always be present to view, generally to assist, and not unfrequently, as in the case of the cheap practice, to operate themselves; and not only so, but they have the opportunity of watching the cases, hearing the diagnosis and probable result, or should death ensue, of seeing the *post-mortem* carefully and scientifically performed—privileges hardly superseded by country practice. I am aware that these advantages are squandered, or turned to but little account by many pupils; but can this with fairness be laid at the door of the school? Should the teachers who are honestly trying to do their best to turn out, not only scientific but practical men, have such sentences as are to be found in Mr. Greaves's letters cast in their teeth? Those young members of the profession who, like myself, have reaped considerable benefits from the college practice, will hardly be doing their duty to the *alma mater* if they do not add their testimony in confirmation of my statements, asserting that the college practice, so far at least as horses and dogs are concerned, is real honest work, and if it differs from country practice, it is in detail rather than in principle. Most of us, I

think, will agree with Mr. Greaves in principle, that, before all things, it is necessary for a veterinarian to be a practical man, a man of prompt decision and acute perception, and that these qualifications are only to be acquired by intelligent observation. Some of us will, no doubt, differ from him in his scheme for the manufacture of these model veterinary surgeons. His plan appears to be to instruct the builder to put on a doubtful roof at once, and let the foundations and walls look after themselves. He then says we are told all the theoretical subjects must be taught, and these are the subjects he designates by this term—Chemistry, botany, materia medica, anatomy, physiology, histology, morbid anatomy, and pathology. Now if a man is ever to become anything of a pathologist—and I presume this is the aim of the student—can he afford to forego one of these? Can he possibly be a pathologist without a fair acquaintance with each and every one of the subjects mentioned? Nay, more, can he understand and appreciate pathology without having a previous acquaintance with these subjects? If he can, then these so-called theoretical subjects are nothing more than impositions enforced by the R.C.V.S. for the benefit of itself and professors. The questions I would like to submit to the profession are these—Can a man satisfactorily study pathology during his pupilage with a veterinary surgeon, assuming that he has no previous knowledge of the sciences? Has the ordinary practitioner sufficient time and ability to instruct his pupils in the elements of science necessary to an appreciation of pathology? Does a pupil usually do more than acquire business habits and become acquainted with the practical details of his profession? Can these practical details for a veterinary surgeon take the place of scientific pathology? And, lastly, can a student who has simply served a pupilage be considered a pathologist? The last two questions seem to receive a positive answer from Mr. Greaves.

Now with regard to the advantage to be derived from pupilage—namely, the acquirement of business habits and acquaintance with practical details—these in themselves form no mean achievements, and if they were generally mastered by pupils would form strong points for its universal adoption; but are they? The professors at the various schools should know, for they see and instruct more pupils in one year than most practitioners in a lifetime, yet, according to our author, all they have to say on the subject is that it makes young men conceited. Few teachers, I judge, would take any notice of, much less object to conceit in their pupils. For my own part, and speaking for anatomy, I have never been troubled with men conceited with their knowledge of this subject; indeed, I should be very pleased with a pupil who on entering knew something of the skeleton. Such men, in my experience, are rarities. My objection to the pupilage begins when, in consequence, a man becomes so satisfied with himself, and so intensely practical, that he thinks he can afford to laugh at science—being able, as he will tell you, to get his living in the country with or without a diploma. I need hardly say these men hang about the schools for considerable periods, and finally quit without the diploma, afterwards becoming retailers of horse or cattle medicines, prepared frequently from the receipt-book of their qualified instructor, which, as it generally contains remedies for all ills, is an invaluable treasure. This matter of receipt books (which savours of quackery) should, if it form an integral part of many veterinary establishments, deal a blow at pupilage, for it can hardly be considered a good beginning for a man who is afterwards to be told that each case should be individually considered and prescribed for, to have served a pupilage with, we may almost say, an animated receipt-book. There are doubtless many points for and against pupilage; to some men it seems very useful. There are, however, two factors to be considered—the seed and the soil; if both are good, we may fairly anticipate good fruit. Let the guardians of would-be pupils well consider and watch the seed, but by no

means should the soil be neglected ; for it is to mould and nourish the embryo which, at this stage of its growth, is particularly impressionable ; and as these early impressions are to be the boon or stumbling-block of the man, I think the character, both professional and moral, of the teacher should be considered in each individual case, and when these points are duly considered by persons competent to judge, before articling a pupil, then, I think, we may fairly expect to reap the benefits of the system.

Royal Veterinary College, *Dec.* 21*st*, 1884. E. S. SHAVE, *Demonstrator of Anatomy.*

MATERIA MEDICA OR THERAPEUTICS.

SIR,—I observe that, in the introductory lecture recently delivered at the Glasgow Veterinary College, Professor McCall insists upon Materia Medica being moved from the first to the third professional examination, on the plea that it embraces the application of drugs to the cure of disease ; and he gives instances of this in the employment of aloes in the treatment of Pneumonia in the horse, and sulphate of magnesia in constipation in the ox. Surely the learned professor had forgotten that the application of remedies for the relief or cure of disease belongs to quite another subject—THERAPEUTICS, which always comes in at the final examination in human or veterinary medicine, whereas, materia medica is an elementary subject, treating only of the source, composition, physiological action, and doses of drugs, and as such it is taught in all the medical schools to junior students, as chemistry is.

Is not the learned professor equally in error with regard to a baronet who has identified himself with the profession by becoming a member, though I do not think he has ventured to practise? The professor speaks of him as one "who, although a nobleman by birth, yet takes the deepest interest in the profession." If the professor will inquire, he will find that a baronetage, whether acquired for some service rendered to the Sovereign or to the State, or whether chancing to be due to the accident of birth, does not confer nobility. A baronet does not rank as a nobleman. But we have had noblemen, and even royal personages, who have taken the deepest interest in our calling, and I do not think their being so was such an act of condescension as to make us descend to anything like flunkeyism (which it appears some are only too ready to do) in noticing it.

"IGNORAMUS."

TUBERCULOSIS.

SIR,—Allow me a little space for a few comments on the communication by Mr. Harrison, in your last issue, in reference to Mr. McGillivray's remarks on Tuberculosis. Whatever may be the normal temperature of cattle in Westmoreland, I may tell Mr. Harrison, that young, vigorous animals in this country not infrequently give a register of 103° F., and that, too, when in perfect health ; and in dairy cows in this city, the thermometer seldom registers less than 101°-2° F., more frequently 2° than 1°. The arrow mark on Mr. Harrison's thermometer indicates the temperature of the human body, not that of any domestic animal. In reference to his remarks on the danger of consuming milk from tuberculous animals, while I agree with him that in every case in which udder lesions exist, the danger of such consumption is manifest ; my experience as to the existence of softening or calcareous

processes in the udder do not accord with that of Mr. Harrison ; such processes in that organ I have *very* seldom seen. Dr. Imlach's experiments were, in my opinion, useless, seeing that there is no evidence of the udders of the cows having been the seat of tuberculous lesions.

Royal Veterinary College, Edinburgh. THOMAS WALLEY.
January 14th.

"ON THE DOMESTIC VETERINARY TREATMENT OF THE ANIMALS OF THE FARM."

SIR,—I am very much disappointed at the result of the conference of the deputation of the Council of the Royal College of Veterinary Surgeons with the Veterinary Committee of the Royal Agricultural Society, respecting the appointment of certain veterinary surgeons in counties as medicine vendors to agriculturists—the medicines to be supplied according to recipes and formulæ given in a pamphlet by Professor Brown, and written especially for agriculturists.

I am sure all country veterinary practitioners will thank Mr. Simpson for bringing this subject before the Council of the Royal College of Veterinary Surgeons, and thereby proving himself the able champion of the injured members of our profession ; our thanks are due also to the other gentlemen who assisted in bringing the matter prominently forward.

I was pleased to read the very pertinent remarks of Professor Walley at the same Council meeting when the subject was discussed. He very properly remarked: "The most objectionable thing about the proposal was that it implied that a veterinary surgeon, in his own district, was not capable of supplying drugs in such cases as those referred to by Professor Brown."

I would like to ask what Professor Brown had to guide him in making such invidious appointments? How did he know the qualifications or special aptitude of veterinary surgeons in country districts—who had been in practice ten, fifteen, or twenty years—without testing them, either by examination or by inquiring in their various districts as to their success or non-success in practice? He can rest assured that the public knows ; for people don't employ non-successful men, as a rule, if they can get the services of successful practitioners. Besides, I can inform Professor Brown that agriculturists know very well how to protect and take care of themselves, without his being so solicitous for their welfare. *Why not allow them to choose for themselves?* They know the successful practitioner, and will get his services if they can, irrespective of distance. Also with the present facilities for telegraphing, a veterinary surgeon can be summoned a great many miles in a few minutes, and if he keeps good horses—which most of us do in the country—he can cover a distance of ten or twelve miles in little time. And however good the Professor's intentions towards agriculturists may have been, he has really done them harm in recommending them to be their own cattle doctors, guided only by his "Domestic Veterinary Treatment of the Animals of the Farm." Most of us well know how many animals' lives are yearly lost through agriculturists tampering with them and giving quack medicines, thereby often extinguishing every chance of recovery, and wasting valuable time, only sending for us when too late, and only to find that they have mistaken the case, and given medicines which have proved injurious.

I would ask, what are veterinary surgeons trained for? And what is the use of subjecting them to such a long course of study, if agriculturists are to be taught how to treat their own stock by such simple means?

Surely there is a great deal yet to be learned in the science (?) of agriculture, in which the agriculturist can more profitably employ his time, than in trying to learn the art and science of veterinary surgery from a pamphlet, even though it be written by a learned Professor!

He had much better entrust the veterinary treatment of his stock to the qualified veterinary surgeon, who devotes the whole of his time to the study of disease and the practice of his profession.

Surely Professor Brown believes in the division of labour, otherwise what is the use of such a large staff of teachers at the college to which he belongs?

In conclusion, I would remark that if the talented Professor, in his high and responsible position, will devote the whole of his skill and energy to and for *the suppression of contagious diseases, and the keeping of the same out of our country*, he will do more for agriculturists than the writing of a library of books "On the Domestic Veterinary Treatment of the Animals of the Farm," leaving the latter for his less fortunate but hard-worked professional brethren in country practice.

JOHN C. JAMES, M.R.C.V.S.

Thornbury, Gloucestershire.

AN ECHO FROM THE COUNCIL CHAMBER.

SIR,—The grave interests involved and imperilled are my excuse for bringing the following matter before the profession. At the July meeting of Council this year, Professor McCall gave notice that at the next meeting he would move that the Council elect four additional examiners at the "C," or final, examination. This notice was hung up in the Council-room three months, according to the requirement of our Charter. At the October meeting of Council, Professor McCall introduced his motion in a very kindly, temperate, and conclusive manner, without a breath of complaint as to the gentlemen forming the present Board, showing very closely and convincingly how the students were put to unnecessary expense, and examiners to inconvenience, arising from the paucity of examiners. This was seconded by Professor Robertson. Instead of there being twenty-two examiners, as authorised by the bye-law No. 20, there had been, owing to economical considerations, only twelve appointed two and a half years ago. It was clearly and ably shown that in Scotland the Board of Examiners practically consisted of eight men only—once only seven examiners. This state of things was shown to be exceedingly objectionable in three respects.

Firstly—That when so many absentees occurred they had to call in, on the spur of the moment, some outsider, some extraneous member—any one, in fact, to officiate as examiner; men wholly unprepared, and probably wholly unfit, to exercise this grave and very important duty, which to the student is almost life or death. Thus the passing or rejection of a student is decided by this irregular, temporised, and incompetent Board. *Is not there in this ample ground for complaint?* *

Secondly—It was shown that, in consequence of the fewness of examiners, the examinations were prolonged to four or five days, when two days would have sufficed if the proper number of examiners had been present, thus entailing additional and unnecessary expense to both students and examiners. *Is not this a sufficient ground of complaint?*

* We believe there is no foundation whatever for the statement in this paragraph.—ED. V. J.

Thirdly—The examiners who do put in an appearance have nearly always to do double duty ; one examiner has to do two examiners' duty, and on one occasion one examiner had to do the work of three examiners in one day.* Is it a matter to be wondered at that the examiner's brain should become tired, wearied, and muddled, and unfit to calmly, attentively, and clearly adjudge the merits or demerits of students so examined? *Is not this, I would ask, an ample cause of complaint?* Nearly every man and myself at the Council meeting considered that they had made out a good and satisfactory case, that they had a grievance, and that it ought to be rectified ; and the four additional examiners were appointed. Let it be here understood that the London School has rarely, if ever, these matters to complain of, and they seem to have no sympathy or consideration for the other colleges.

We will now examine the reasons advanced for refusing the request made by the Principals of the three Scotch colleges, and, we may presume, by the whole profession in Scotland.

It afterwards transpired that the election was not legal, owing to our secretary having failed to specially announce the election of four examiners in the circular convening the meeting, thinking that the words "*and for other purposes*" were sufficient. Therefore the whole had to be gone over again at the January meeting :—

Firstly—It was argued by one of the London professors that they had failed to make out a case ; that there was really no necessity whatever for any addition to the Examining Board ; that the London College had no complaint to make ; that the examiners had not made any complaint that the work was fatiguing or too much for them to do. This specious argument, I think, has been completely and conclusively refuted to any impartial mind.

Secondly—It was urged that it would incur an expense of £150 annually to have these four examiners. How this was made out was not shown ; it was, on the other hand, shown and demonstrated that, with the exception of the railway travelling expenses (which are allowed when the distance is over 100 miles), it would entail *no* additional expense whatever ; and had the amendment I was prepared to propose been adopted, even the railway expenses would have been altogether avoided. The railway expenses incurred have been the heaviest for the botany examiner, although his subject is of the least relative value to the student or to the profession generally. I think the argument and objection on this head were entirely removed.

Thirdly—It was argued at the meeting that the Council had no power to elect additional examiners in the middle of the term of five years. I think that member was the only one who held that opinion. I heard it said it was ridiculous. The bye-law is clear on this point : the words are, "The Council shall appoint a sufficient number, not exceeding twenty-two persons, to constitute a Court of Examiners, and shall from time to time fill up any vacancies which may occur." As I read it, the Council could, if it chose, have elected twenty-two persons when the election came on two and a half years ago. The Council considered twelve to be sufficient. Now, finding, after two and a half years' experience, that twelve persons are inadequate to perform the duties, it is perfectly in the power and discretion of the

* We never knew of such an occurrence, and think our correspondent must have been misinformed. So much that is untrustworthy is being disseminated with regard to examiners and examinations by interested persons, that care is necessary in accepting statements regarding them. Mr. Greaves has been misled through not exercising this care. The only examiners who do double duty in one day, are the four who examine in horse and cattle pathology at the final examination. Whether these are unfit to examine—being wearied and muddled—we leave them to say. No complaint, however, was made regarding them until the rejection of students became more marked than usual, and Mr. Greaves has elsewhere given a reason for these rejections.—Ed. V. J.

Council to from time to time add, at any time, any number of persons it may require, not exceeding twenty-two persons in all. I think this objection will appear to any unprejudiced mind to be removed; but it appeared strange to me and to others, that Mr. Peter Taylor should move an amendment to this effect—that the additional examiners should not be appointed. He moved this on the ground that the Council had no power to appoint; so anxious was he to carry his point that the President was obliged to restrain his ardour. Professor Axe seconded this amendment, but on totally different grounds, or for totally different reasons—viz., that the necessity had not arisen—that additional examiners were not required; so great was his loquacity and so refined his high-sounding platitudes, he wanted to attach several riders to it—the President was obliged to restrain his ardour—anything or everything, in fact, so as only to swamp the motion. Surveying the whole matter, it was difficult to say whether jealousy, envy, or hatred predominated. After discussion, the amendment was carried by fourteen against seven votes. Unfortunately, there were six members absent, every one of whom was on our side. I have had some experience in these matters, being the oldest member of Council; and it appeared to us that an effort had been made to bring every man up to the scratch that could possibly be got to vote against the motion; they came swooping down into the Council-room in a body (one of the largest Council meetings I have ever seen) especially, as it seemed to us, to swamp the motion, and refuse to grant the Scotch request—refuse to rectify this grievance, regardless of consequences, regardless whether we alienate Scotland from our Council or not, regardless of the fact that they were repeating the egregious blunder which was made forty-one years ago, in this very room, by our predecessors (and who, every man of them, bitterly regretted having done so to their dying day): when Professor Dick made a request that a certain bye-law should be suspended, the Council refused; it only took four minutes to make the breach, but it has taken forty years to heal that breach. Just as we have got a united profession and the Scotch prejudices are dying away, we again sit upon them. In this case we have refused a just and reasonable request, and possibly alienated the three colleges, and, I may say, the whole profession in Scotland. The three Scotch professors had each a motion. Professor McCall's had met with an ignoble defeat. This and the other two had been entered upon the circular convening the meeting; but, seeing the spirit and the tactics employed, Professors Williams and Walley, more in sorrow than in anger, withdrew their motions, seeing the utter hopelessness and inutility of expecting the Council to comply with any request of theirs. I, too, felt exceedingly sorry—too much discouraged and disheartened to propose my amendment, which I had prepared, to the effect that a compromise should be attempted—viz., that since the London College was satisfied with the present Board, be it so (here let me, in parenthesis, observe that at the October meeting Professor Robertson seconded the motion made by Professor McCall to elect four additional examiners; yet, strange to say, by the time January comes round he has quite seceded from the proposition, and changed his mind, saying he had no complaint to make against the present Board of Examiners, and voted against the measure he had seconded previously); but let four additional examiners be appointed—*but appointed out of the members of the profession within one hundred miles of Edinburgh or Glasgow.* By this action you would avoid any railway travelling expenses; this, I think, would meet the approval of our very excellent, economical Treasurer; it would also meet, in a graceful and beneficial manner, the just and reasonable wishes of the Scotch professors and the profession in Scotland.

THOMAS GREAVES, F.R.C.V.S.

[We are of those who think that four examiners might, with advantage, be

added to the number in the practical portion of the "C" examination; but those who think otherwise have doubtless good reasons for doing so. We consider it a grave blunder attempting to constitute the rejection of the proposal referred to, a *Scotch* grievance. Ireland has a right to be considered in the selection of examiners; that country is entirely unrepresented, yet we do not hear of this as an Irish grievance—Irishmen have more sense.—ED. V. J.]

TO CORRESPONDENTS.

E. W. HOARE, MONTREAL.—Will have much pleasure in receiving your paper.

M.R.C.V.S.—Any person can give a certificate of soundness; there is no illegality in doing so. But there would be if he appended the letters M.R.C.V.S. to his name if he had no right to do so.

COMMUNICATIONS from Professor Walley, T. Greaves, F. Smith, R. Poyser, B. A. Clancy, R. McConnell, and others, as well as the reports of the Lincolnshire and Border Counties Veterinary Societies, will appear in our next.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from J. Penberthy, London; A. Broad, London; J. F. Simpson, Maidenhead; J. K. Pilkington, Garston; A. W. Hill, London; G. D. Whitfield, A.V.D., Dublin; R. Poyser, A.V.D., Meerut, India; John C. James, Thornbury; J. J. Sperring, Belfast; E. W. Hoare, Montreal; "A late London Student;" Professor Walley, Edinburgh; E. S. Shave, London; J. B. Gresswell, Louth; H. Kidd, Hungerford; J. Macqueen, Glasgow; H. Dyer, Limerick; T. Greaves, Manchester; J. H. Steel, A.V.D., Rangoon; W. Penhale, Barnstaple; W. Pallin, The Curragh; F. Shaw, Farnham; J. Ritchie, Forfar; B. A. Clancy, Dublin; R. McConnell, Castle Douglas; C. Hartley, Lincoln; Lt.-General Sir F. Fitzwygram, Leigh Park; J. Donald, Wigton; "M.R.C.V.S."

JOURNALS, ETC.: *Quarterly Journal of Veterinary Science in India; Der Hufschmied; Wochenschrift; Recueil de Médecine Vétérinaire; Repertorium der Thierheilkunde; Archives Vétérinaire; American Veterinary Review; Live Stock Journal; Lancet; Animal World; Mark Lane Express; Animalia; Œsterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; Der Thierarzt; Clinica Veterinaria; Tidskrift für Veterinar-Medicin; Annales de Médecine Vétérinaire; Repertorium für Thierheilkunde; British Medical Journal; American Live Stock Journal; L'Echo Vétérinaire.*

BOOKS AND PAMPHLETS: *J. B. and A. Gresswell*, Manual of the Theory and Practice of Equine Medicine; *W. White*, The Story of a Great Delusion; *J. McFadyean*, The Anatomy of the Horse; *M. Horace Hayes*, Training and Horse Management in India; *A. R. Wallace*, Vaccination both Useless and Dangerous; *C. W. Gregory*, The Principles and Practice of Shoeing; Bulletin et Mémoires de la Société Centrale de Médecine Vétérinaire.

NEWSPAPERS: *Glasgow News; Dundee Courier and Argus; Baltimore American.*

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MARCH, 1885.

THE TREATMENT OF COLIC WITH PHYSOSTIGMINUM.

BY PROFESSOR W. F. GARSIDE, ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

IN the VETERINARY JOURNAL of November, 1882, I brought under the notice of English veterinarians an account by Professor Dieckeroff, of the action and uses of this drug (the alkaloid of Calabar bean, also known as Eseria). I am pleased to find that it can now be obtained from some of our wholesale druggists, and that it is also being used in the practice of some of my professional brethren. Mr. Nettleton's interesting article in the VETERINARY JOURNAL, January, 1885, is, I think, instructive on several points. One lesson, I think, ought to be gathered from its perusal, viz., to avoid being too hasty in coming to a conclusion regarding the merits or demerits of a new therapeutical agent. His first cases were not by any means calculated to impress him favourably with regard to the drug now under consideration. Indeed, I rather suspect that Mr. Nettleton was somewhat disappointed, as he does not appear to have used physostigminum in his subsequent cases (with the exception of case No. 4) until other medicines had failed—in fact, its use looks very much like a *dernier ressort*. The success which attended his latter cases clearly justifies Mr. Nettleton, I think, in saying that physostigma deserves "a place as a valuable remedy in veterinary practice."

Professor Siedamgrotzky, of the Dresden Veterinary College, has just published in the *Sächs. Veterinarber* (28 Jahrgang) a valuable contribution regarding the action of this drug. In the hope of helping those veterinarians who still hesitate about using physostigminum to come to a decision, I offer a translation of Professor Siedamgrotzky's instructive article :—

"During the last twelve months 97 patients were admitted into the Dresden College Hospital suffering from Colic, of which 17 died. Eseria (physostigminum sulphate), which has been so strongly recommended by Dieckeroff, was administered at once in 53 cases. Every case of Colic was not treated with eseria, but other remedies, such as morphia injections in slight cases of Spasmodic Colic, aloes in Impaction, etc., were tried ; whilst in severe and hopeless cases, in which one had reason to suspect displacements of the intestines, such as Volvulus, etc., eseria was only occasionally given. The results of the treatment are given in the following lines, in which the diseases, as far as a knowledge of the history of the case and symptoms presented would allow us to judge of them, are grouped into the various recognised forms of Colic :—

"1. *Spasmodic Colic.*—Six cases.—Fæcal evacuations took place in from 10-12 minutes, in one case, however, in half an hour, after the injection of 0·04 gramme (in one case 0·05 gramme) of eseria. Recovery occurred in every case within half an hour.

"*Colic from Overfeeding.*—Recovery followed in two cases in an hour after administration of 0·05 gramme and 0·08 gramme respectively, and fæces were passed in two hours. In a third case, which was apparently a hopeless one, no action resulted from 0·04 gr. of eseria. Death occurred in half an hour. *Post-mortem* examination revealed rupture of the stomach.

"3. *Impaction Colic.*—Eight cases.—Passage of fæces took place in six cases in 15-45 minutes after the administration of eseria. Doses—in one case 0·03 gr., in five 0·05 gr., in two 0·08 gr. In two of the cases no action of the bowels resulted, notwithstanding that the dose was 0·08 gr. Recovery took place in two cases, but in the remaining ones it was necessary to

administer, about two hours afterwards, laxative medicine (extract of aloes, etc). Recovery followed in 2-6 hours.

"4. *Flatulent Colic.*—Six cases:—Eseria, in 0·05 gramme doses. In every case, in 7-15 minutes, a large quantity of gases made their escape, recovery being complete in 30 minutes.

"5. *Constipation Colic.*—Thirty cases.—Recovery took place in twelve very severe cases after the use of eseria alone (one case 0·4, two cases 0·08, eight cases 0·05, and in one case 0·03 and 0·05 gramme); the intestinal murmurs were audible in 15-4 minutes, fæcal evacuations occurred in ½-2 hours, recovery taking place soon after. In eleven cases the injection of 0·05 gramme of eseria produced no effect, or at most only a transient one; laxative medicine was, therefore, prescribed after an interval of two hours, the result being recovery in 4-8 hours.

"Twenty-eight of the patients suffering from Colic recovered in, comparatively speaking, a very short time, after the use of eseria alone. In twenty-four cases its action was insufficient, and was supplemented by the use of laxative medicine. Nevertheless, we have every reason to be highly satisfied with the results. Eseria is particularly applicable in cases of Spasmodic and Flatulent Colic, and also in Colic arising from overfeeding. It is more convenient, and acts more rapidly, than any other remedy.

"It should, however, be mentioned that the powerful intestinal movements which eseria calls forth are not always of themselves sufficient to break down and remove the hard impacted masses which are often present. In such cases, especially in those accompanied by obstinate constipation, we cannot afford to dispense with other laxative agents, such as aloes extract, Glauber's salts, etc."

It is to be hoped that other practitioners who have used, or may in future use, physostigminum will follow Mr. Nettleton's example, and furnish us with the results. Might I suggest its use in some of the obstinate cases of Constipation and Impaction of the stomach in ruminants. It might also prove beneficial in Tympanites in these animals; anyhow, it is worthy of a trial.

RUPTURE OF THE RECTUM.

BY A. SPREULL, F.R.C.V.S., DUNDEE.

THE subject of this rather unusual lesion was an eight-year-old chestnut-coloured, heavy lorry horse, the property of a firm of contractors here.

Up to the morning of the 26th of January he had been in perfect health, so far as could be seen, and even on that day he did his work as usual. He also ate all his food during the day, though he took rather longer to consume his allowance, and with the exception of his supper, which was not quite eaten out, he may be said to have taken his food as usual. It was remarked by his driver during the day that he made frequent attempts to micturate, and on this account he complained at night that he thought "all was not so right as it ought to be with him." No particular notice was taken of this statement, as he seemed to be all right again, and had begun to eat as usual after the day's work was over.

About midnight, however, the night watchman observed that he was breathing too rapidly, trying to pass urine again, being rather uneasy, but not much pained; after watching him for some time he considered it necessary to call the horse-keeper, who in turn sent for me so soon as he had arrived and seen the state in which he then was. On my arrival, between four and five on the morning of the 27th, I found that the animal was standing in a very depressed condition, with haggard expression of countenance, head and ears pendent, mucous membranes injected, breathing accelerated, slight sweatings on the sides of the neck and at the flanks, considerably—but not excessively—swollen abdomen, pulse imperceptible at the jaw, and all the other symptoms indicative of collapse. After making a careful examination, I informed the attendants that he could not live more than five or six hours, and that he was suffering from Peritonitis, the result of rupture of some portion of the intestines. I then took my departure, and when I returned found that the result was that he had died about nine o'clock that morning, about five hours after I had previously visited him.

The *post-mortem* examination made by me about three hours after death revealed a rupture of the rectum, about an arm's length or so from the anus, just beyond the entrance to the pelvic cavity, the opening being large enough to permit of the exit of a dust ball of about three inches in diameter, which I at once jumped to the conclusion had caused it, but on making a further examination of the abdominal cavity no trace of a calculus could be found. The contents of the stomach and larger intestines were perfectly regular and pultaceous, though these organs themselves—more especially the former—were considerably distended with gas; I was therefore forced to the conclusion that the rupture must have resulted from the effects of excessive Tympanitis.

The chief point of peculiarity and interest for the profession in this case, seems to me to be the comparative rarity of the rupture having occurred so far back as to be almost within reach of the hand, and this must be my excuse for recording it. I am further of opinion that the rupture must have existed for the greater part of, if not for the whole day previous to death, while he yet did his work, and at least had not entirely ceased to eat his food, as the peritoneum, both parietal and visceral, was inflamed throughout to a greater or less extent, showing that the irritant causing this had been for a considerable time in contact therewith; and the fact that the mucous membrane and muscular coat of the bowels remained perfectly healthy, proves conclusively to my mind that the inflammation of the peritoneal covering arose solely from contact with the escaped ingesta. In addition to the part actually ruptured, there was another portion almost immediately in contact therewith, which had given way so far as the peritoneal covering was concerned, but the muscular and mucous coats remained intact; this rent extended for about six or eight inches, and had an average width of about half-an-inch, portions being as wide as double that distance.

OBSERVATIONS ON THE TREATMENT OF TETANUS IN HORSES.

BY J. B. GRESSWELL, M.R.C.V.S., AND
ALBERT GRESSWELL, B.A. CH. CH. OXON., M.R.C.S.

(*Continued from page* 80.)

Chloral Hydrate.

Physiological Action.—When administered in medium doses, chloral hydrate causes sleep. This is said to be partly owing to its direct action on the nervous structure of the brain, and partly to the anæmia which shortly succeeds the temporary congestion induced in this organ.

Our own investigations lead us to attribute the soporific effects of chloral more especially to the former of the two above causes, and rather also to congestion of the central organ of the nervous system, than to anæmia. For in cases where small animals have been killed after several rather large doses of chloral the cerebral structures appeared rather congested than anæmic.

Large doses of chloral induce profound sleep, which passes into coma. The number of the pulse-beats are reduced by this drug, or they are rendered very weak and rapid, and the temperature of the animal falls.

At first the pupils contract, and afterwards dilate; it is, however, not always possible to detect any contraction when the drug is administered in medicinal doses.

Chloral hydrate induces great muscular relaxation, and after poisonous doses the animal dies from arrest of respiration or paralysis of the heart. Some physiologists maintain that chloral produces hyperæsthesia, but this is denied by others. In large doses, at any rate, anæsthesia is caused. The paralysis and loss of reflex action seem to be due *to the direct action of the agent upon the cord itself*, for the motor nerves and muscles themselves are not affected by it. Moreover, in a chloralised animal direct irritation of the spinal cord produces less active contraction, than in animals not under the influence of chloral.

The blood pressure is markedly lowered by large doses of chloral; the heart is weakened, and in poisonous doses is arrested in diastole.

The frequency of the breathing is diminished, owing to the action of the drug on the respiratory centre in the medulla oblongata.

Value of Chloral in Tetanus.—On purely physiological grounds we should expect that chloral would prove an invaluable remedy in Tetanus, and, practically, it has been found to be of undoubted efficacy in reducing the number and the severity of the spasmodic seizures of Tetanus.

Mr. D. Gresswell administered this drug for many years in the treatment of this disease, and believed it to be a very valuable remedy. And though chloral does not, in our opinion, exert so powerful an influence in the progress of Tetanus as do aconite, morphia, or tobacco (given in the form of enemata, or hypodermically as nicotia or nicotine), yet, nevertheless, it has proved in our practice, and in that of Mr. Charles Gresswell, of Nottingham, a very efficient adjunct to the more powerful medicines.

Many eminent authorities, both at home and abroad also, have spoken in high terms of the efficacy of chloral in this painful disease, yet it should be remembered that in some, at any rate, of the recorded cases, other remedies, such as morphia, hydrocyanic acid, and tobacco were also administered.

Chloroform.

Physiological Action.—The action of chloroform as an anæsthetic is too well known to need lengthened comment here.

Full doses of chloroform, inhaled or ingested, paralyse and narcotise the cerebro-spinal nervous system. They first briefly excite the brain and the other nervous centres, and then paralyse and inhibit their various functions. The heart's action is at first accelerated, and afterwards steadily depressed, and the pulse becomes weak and soft.

The respirations, at first diminished, became more rapid, but as the narcosis increases they again become retarded and shallow and irregular also.

Value of Chloroform in Tetanus.—In Tetanus chloroform has been administered by the mouth, and also as an inhalation. We have not much experience of its efficacy when given by mouth

in this disease, but in several cases have tested its value when inhaled. If the horse be allowed to breathe over a bucket half full of hot water, to which ʒ iii. to ʒ ss. of chloroform has been added, he becomes quieter in some cases, the spasms become less severe, *and the muscles of the jaw relax.* But the advantage obtained, though, we believe, more lasting than in the case of inhalation of nitrate of amyl, is not permanent. To be of any material advantage chloroform inhalations require to be repeated once daily, and in severe cases twice.

Conium and Conia.

Physiological Action.—The experiments and observations of Paul Guttmann on rabbits, show that conium causes gradual paralysis of the voluntary muscles, and then of the muscles of respiration. The paralysis first begins in the hind extremities, then affects the anterior muscles and those of the trunk, and lastly those of respiration.

This paralysis is not due to the action of the drug upon the muscles themselves, for it has been shown that the irritability of muscles through which blood poisoned with conia has been permitted to flow, is as great as that of muscles of the same animal protected from the action of the poisoned blood by ligation of the blood-vessels.

Nor does conium paralyse by its effect on the cord itself, for if a limb is protected from the influence of the poisoned blood by ligation of both its artery and vein, and the animal (frog) is then poisoned and thoroughly paralysed by conium, the ligatured limb can still manifest powerful movements.

Now we see that the only muscles which in this experiment retained their power of movement were those which were protected from the poisoned blood by ligature of the blood-vessels. Conium, therefore, acts upon some of the tissues protected from the action of the poison, and these tissues have been proved not to be the muscles. It follows, therefore, that they are the nerves themselves. Guttmann has shown that the poison affects the periphery of the motor nerves earlier than the trunk.

Finally, the sensory nerves are apparently not affected. Thus conia paralyses solely by its action on the motor nerves.

Dr. Harley's investigations lead him to the conclusion, that conium is a depressant of the motor tract of the cord and the motor ganglia of the brain. There is much difference of opinion as to its action on the heart.

Value of Conium in Tetanus.—In the treatment of Tetanus in horses, conium has yielded only disappointing results in our hands and in those of many other veterinarians. When given in full doses, the hypodermic injection of conia appears to have some, but not much, effect (and that not permanent).

Guttmann found that conium, even in very large doses, failed to arrest the tetanic spasms in strychnine poisoning.

From our own investigations into the pathology of Tetanus, of which we have given a short abstract in our "Manual of the Theory and Practice of Equine Medicine," pages 326 and 327, it appears that in some cases of Traumatic Tetanus, at any rate, pathological lesions do take place in the cord itself; we could perhaps, therefore, hardly expect permanent advantage from the employment of an agent, the chief action of which is on *the endings of the motor nerves.* We should rather expect permanent advantage from an agent such as chloral hydrate acting on the central nervous system. At the same time the pathology of Tetanus is still enshrouded in doubt.

But whether we regard the disease as a blood disease, or whether we hold with some that the traumatic form is due to irritation of the nerves implicated in the wound, and regard the muscular spasms as the result of reflex irritation, yet we should in either case expect more advantage from those sedatives which acted on the central nerve organs, rather than from those, such as conium and its alkaloid, acting on the motor nerve endings.

The following are the reasons which have been advanced in support of the view that Tetanus is a blood disease :—

1. It often occurs idiopathically without any injury.

2. It is more prevalent in certain districts than in others, and is sometimes enzoötic, affecting several animals in the same district. There is, however, no proof that Tetanus is ever contagious.

3. The resemblance to Hydrophobia and strychnine poisoning suggests a similarity in the nature of the cause.

4. Tetanus is said to be transmissible to men by eating the flesh of animals which have died of the disease, nevertheless this statement requires confirmation ("Manual of Equine Medicine," page 321).

Gelseminum sempervirens, S. Gelseminum.

Physiological Action.—The root of "yellow jasmine," imported from the United States, and its alkaloid gelsemia or gelsemine, are powerful paralysers and respiratory poisons. Ringer says the paralysing action of the drug is best studied in the frog. In these creatures it often causes Tetanus as well as paralysis. With small doses of the alkaloid paralysis only is produced, with larger doses quiverings and tetanoid movements, and only after large doses decided Tetanus. The spinal cord is paralysed, but the motor nerves and muscles are unaffected. The Tetanus is due to the action of the poison on the cord, and paralysis always precedes it. In the property which gelsemia has of first weakening and then tetanising the cord, it resembles jaborandi and its alkaloid pilocarpin, buxus sempervirens, and other drugs.

Gelseminum is a powerful respiratory poison, and generally, if not always, destroys warm-blooded animals by asphyxia before it produces complete paralysis (Ringer).

Gelseminum is said to have febrifuge properties, as it lowers the pulse and depresses the nervous system. It has been much used in human practice in Acute and Rheumatic Neuralgia and toothache. It is an antidote to strychnine poisoning.

Value of Gelseminum in Tetanus.—Gelseminum has been given successfully in a case of Traumatic Tetanus in man. It has not been much used as yet in this country in veterinary practice. Our experience of its efficacy in Tetanus is limited to one case, in which the tincture was administered thrice daily.

Although the case, which was one of the traumatic variety of a not very severe type, recovered, yet we cannot attribute the success to the gelseminum, as other remedies were also given.

As yet, therefore, we cannot speak definitely regarding its value in Tetanus, though we are not inclined, from our limited experience of it, to have much hope in its efficacy.

In the writer's "Extra Veterinary Therapeutics and Pharmacopology," which is now in the printer's hands, we have mentioned the doses of the drug employed, and other facts of importance concerning its therapeutic value and preparations, etc. We are not aware whether others have employed gelseminum for the treatment of Tetanus, but if so, we should be glad to hear of the results.

(*To be continued.*)

VETERINARY THERMOMETRY.

BY A. E. MACGILLIVRAY, M.R.C.V.S., BANFF, N.B.

THE age in which we live is progressive; new things and new ideas are daily cropping up, some useful and some the reverse. In our own profession no more useful adoption than the comparatively recent introduction of the clinical thermometer could well have taken place. Once thoroughly adopted in any one's daily practice, its use and value are alike indispensable; one feels quite at a loss if a good clinical thermometer is awanting!

No doubt certain parties do not properly appreciate—or, perhaps, cannot properly make use of, or disbelieve in even using, the thermometer; this, however, does not detract from the proved benefits to be derived from a thorough, scientific, and practical introduction of the clinical thermometer into the daily routine of practice.

I cannot allow myself to imagine that any member of our profession could be so far left to himself, as even to pretend that *he could diagnose* any disease whatsoever by means of the thermometer; it seems, however, that all members of the profession are not of this opinion (see article on *Tuberculous Milk* in the January number of this Journal). I consider it quite an insult to the profession to insinuate that any one of its members could ever dream of hanging the *onus* of a diagnosis on "the mechanical one of seeing with his eyes the figures indicated on the instrument." The mere idea is preposterous, but quite compatible

with the equally absurd assertion that the "normal gauge" of the bovine temperature is 98·4° F.

In Westmoreland, however, it seems (according to Mr. J. Harrison's observations) that the natural bovine temperature is actually 98·4° F.; if so, I feel bound to assert that Westmoreland is a place with a bovine temperature "all its own"! Away in the North here, our *black runts* cannot get themselves cooled down to such an extent; for, as a rule, in some thousands of observations, with at least a dozen different clinical thermometers, I have found the natural bovine temperature to be, as I have often said, 102° F., and notwithstanding all the extraordinary observations of Mr. J. Harrison, I shall continue to hold on by this *fact!*

In the *Veterinarian* for 1880 and 1881, there occurred some difference of opinion as to the healthy bovine temperature; and in the number of that periodical for January, 1881, I maintained that 102° F. was the natural temperature of the healthy adult bovine; that of juveniles being often a little higher. I observe, in last issue of the VETERINARY JOURNAL, that Professor Walley has noticed that healthy, robust bovine juveniles often run up to 103° F.; the Professor also disposes of Mr. J. Harrison's wonderful fallacy about the 98·4° F. temperature. Mr. Harrison's ideas about bovine thermometry are evidently quite at sea—in fact, he does not make a single correct observation in the whole of his remarks on this topic, and consequently the only inference to be drawn is that his experience is nowhere, and that it is quite evident he knows absolutely nothing about the matter!

It is really quite "astounding" that parties *will* take it upon themselves to write critically (?) upon subjects of which they are utterly ignorant; and not only this, but they will actually wax quite witty, and quote any amount of Latin, forgetting that their wit is aimless and their Latin quite irreconcilable with the context.

Returning to our object-in-chief, I may perhaps be allowed to quote an undoubted authority as to the thermometry of our domesticated animals; and I am the more anxious to do so, as it really seems but too apparent that the general ideas current on

this subject are neither satisfactory nor correct. According to Krabbe, then, the following may be accepted as representing the temperature of our various domestic animals in healthy adultism :—

Horse ... 100·8° F.	Dogs ... 102° F.
Cattle ... 102° F.	Cats ... 102·4° F.
Sheep ... 103° F.	Pigs ... 102·5° F.

These figures I have found in some thousands of observations to be quite correct, and I beg to submit them to the profession as a sound and thoroughly reliable basis for all future clinico-thermometrical observations.

In our semi-domesticated animals, such as the camel* and elephant, the natural temperature stands, according to J. H. Steel, thus—

Camel ... 99° F.	Elephant ... 97·6° F.

The great variation apparent in these two sets of figures shows how ridiculously foolish it is to suppose that *one temperature* holds good in all healthy adults—whether human or brute! For instance, if the natural temperature of the sheep were found in the human subject, a high and even dangerous degree of fever would exist in the latter. Reverse the process, and find a sheep registering 98·4°, and we should find our ovine patient (if not defunct) at death's door! The truth of this was brought out during Mr. J. H. Steel's observations on camels, one of which, apparently in good health, ran up to 102·6° F., *and died next day from Anthrax.*

Some other member of the veterinary profession in or near Westmoreland might favour us with a few observations on this interesting topic, and either confirm Mr. J. Harrison's assertions, or otherwise convince him of his errors.

* We have always considered the camel a domesticated animal, and in the countries where it is employed it is in this respect quite as much so as the horse or ox. It is a question whether wild camels exist in any part of the world. Even the elephant in India is perfectly domesticated.—ED. *V. J.*

PARALYSIS IN EWES CAUSED BY EATING "SCROPHULARIA AQUATICA" ("GREATER-WATER," "TIGER-WORT," "WATER-BETONY").

BY T. RUNCIMAN, M.R.C.V.S., MARKET DEEPING.

On the 22nd of January last, I received a message in the morning to go at once to a farm three miles off, as the owner had some ewes bad from eating too freely of mangolds. On my arrival I found six in-lamb ewes in a house—five of them quite unable to stand; if lifted up they immediately tumbled down if not balanced against the wall. In fact, they were perfectly helpless. The sixth one reeled and staggered, but was not so helpless as the others. There was complete loss of appetite and constipation of the bowels; kidneys inactive. The mangolds were evidently not at fault.

On inquiry I found they had been brought home five or six miles off, two days previously, and put into a field through which runs a large dyke or ditch; this dyke had lately been cleaned out, and all the herbage and refuse flung on to the bank.

On proceeding to the field, I could see that wherever any of this plant was about among the dyke cleanings the leaves were all cropped close off. I had no doubt in my own mind that this was the cause of the illness amongst the ewes. I have never heard or read of this plant producing illness among stock; probably in its green state they instinctively shun it. This was in a partially dry state.

The treatment consisted of purgatives, followed by stimulants and nux vomica, and I am pleased to say they all recovered. One had partial paralysis of a hind-leg for two or three days after the others recovered; but another aperient seemed to have a good effect.

RHEUMATOID ARTHRITIS (SO-CALLED "KUMREE," PARAPLEGIA, ETC.).

BY OFFICIATING INSPECTING VETERINARY SURGEON R. POYSER, F.R.C.V.S., BENGAL.

FROM time immemorial to the present, the terms "Kumree," "gone in the loins," "windstroke," or more technically, "Paraplegia," have been generally and naturally accepted by the lay community—and too readily, perhaps, concurred in, and even employed, by the veterinary profession itself—as empirically descriptive of conditions affecting equine life hitherto characterised by occult and grave pathological phenomena, from which the subjects of them are temporarily or permanently incapacitated for work, and from which no small number die annually, more especially in some parts of India and Burma.

That the true nature of this frequently-recurring and, it must be said, fatal malady should so long have been shrouded in mystery, that the veterinary medical profession should have been contented to accept mere tradition as gospel, and thus have perpetuated its own shortcomings as to the real pathology of "Kumree," is not a little surprising; and who can shirk the blame that attaches?

It certainly was neither from want of opportunity nor of veterinary surgeons, but it has been taken for granted by the profession, generation after generation, that all had been said and written upon "Kumree" that was possible, excepting as to the causes, which attracted more than ordinary attention whenever it assumed an epizootic character and was unusually fatal.

In fact, it was regarded as a malady not to be further understood if further investigated, which the literature on the subject seems to prove. Consequently "Kumree" has appeared periodically, to be treated empirically, and it has disappeared with little more than passive consideration. But, strange to say, a pathology was written for it, which has been persistently and conventionally repeated on the same fallacious lines.

Indeed, its pathology is to this day considered practically

settled, the organs more particularly implicated being said to be the posterior part of the spinal cord, the motor nerves therefrom arising, their capillary circulatory system, and those organs to which the said nerves supply motive power, whose loss constituted the most prominent and manifest symptom of the disease.

Its causes, however, were never so definitely decided. They were more speculative because less tangible and manipulative.

A retired authority has left it on record that "Kumree" is purely a dietetic disease, arising from the baneful influence of ergotised seeds, which, be it known, are never seen in the grain or grass forages given to Indian horses, troop or otherwise. He inferred this on the ground of once having seen or heard of equine Paralysis in Scotland, said to have been produced by ergotised rye.

Another authority—the latest and youngest—who was awarded 200 rupees for his essay on the subject by the Government of India a couple of years ago, advocates the use of ergot of rye as a curative medicine in "Kumree." He has, however, made some correct observations, especially as to the action of the wind on a heated system, and the specific result thereof, and emphasised the "chill" produced as the chief cause.

A third authority, who cautiously states that the "disease is caused by some local influence favoured by the season of the year," is correct up to this point, and wrong in believing it to be "due to something conveyed with the food (grass or grain) that flourishes at some stations more than others in the autumn months." He "cannot account for the local influence," for "statistics negative the idea of its being caused by sun or wind." The statistics, however, are incorrect and incomplete.

Post-mortem examinations were always made in the lumbar region, to account for that most palpable but deluding symptom, paralysis, and thus resulted softenings of nerve-tissue, serous effusion, hypertrophy of individual nerves, and a host of microscopic deflections from health, enough to account for anything anywhere. It never seems to have occurred to investigators to look elsewhere for pathological lesions; no, it were sufficient to treat and to account for the one symptom, paralysis.

Disease found in organs remote from the supposed seat of

"Kumree" could not be credited with the production of loss of power. When, however, professional experience was unbiassed with the idea that "Kumree" was a purely paralytic affection, a more correct, though incomplete, estimation of the real disease was arrived at, and notably in two cases to be referred to. And it was here, in the first of these instances, that the author of this article received his earliest impressions as to the fallacy of the old doctrines, and as to the true character of "Kumree," from which two horses were then dying.

The veterinary surgeon in charge had—never having seen or been taught to see "Kumree"—diagnosed the cases as "Acute Rheumatism."

The similarity between these affections before and after death was forcibly impressed on the writer, who then communicated his views to the above officer: this was in October, 1881, at Bareilly.

Though it is now known that the *post-mortem* examination was not carried far enough, yet it was sufficiently prosecuted to disclose in part the actual state of affairs, which Veterinary Surgeon J. J. Philips placed on record in a scientific journal as "Rheumatoid Arthritis," a term suggested by the writer, who determined if possible to confirm the conclusions almost accidentally arrived at; this was done in November and December of the same year, during a tour of special duty between Bareilly and Ranibagh, amongst Dak ponies.

Further opportunity was not met with until August, September, and October of 1884, when so-called "Kumree" appeared in Meerut, in an epizootic form, among the horses of the 8th Hussars, Royal Artillery, 13th Bengal Lancers, and of private owners.

The *ante* and *post-mortem* testimony here furnished was not only abundant, but overwhelmingly corroborative of the opinion the writer originally formed.

Mr. Garratt, the veterinary surgeon in charge, who had formed an approximately correct idea of the nature of things, diagnosed the cases as "Acute Rheumatism." He, too, was unbiassed in "Kumree" of the old theory, and was otherwise happy in meeting with the early symptoms—diagnostic of Rheumatism

—and in not being brought suddenly upon the more secondary signs which would in all probability have led him, as they have done others, to register them under Paralysis.

Such cases occurring simultaneously at Saharunpore have been called "Kumree," at Umballa and Muttra, Paralysis, and in Morar, Brain Disease and Paralysis.

Inspecting Veterinary Surgeon Professor Kettlewell believes that *some cases* are complicated with Cerebro-spinal Meningitis; and it is not unlikely that this complex phase may obtain, as he says, in some, and possibly in the worst cases.

With this history and other evidence before him, Mr. Poyser claims the honour of first determining that "Kumree" is not a purely paraplegic or paralytic affection; that the loss of power is here merely a palpable expression of the sufferer's inability to support his own weight, or to rise without assistance when down, on account of the intensity of the pain experienced in the affected joints and the tissues connected with them, and other organs concerned in maintaining a standing position, and instrumental in the act of rising from recumbency, as well as in other movements; that the hinder parts are not the only sites of the disease, and that the heart is always seriously implicated, at least in the more severe types, and which have been irrefutably proved both during life and after death.

It is to be distinctly understood that the recent equine epizootic in Meerut, which terminated fatally in eleven out of about one hundred attacks, is no new disease; it is simply a very old one with a new name, and the same with which the writer had to contend in Meerut twelve or thirteen years ago, there and then registered as Kumree or Paralysis. The new technicality fairly describes its character and defines its locality, whilst being, at the same time, consistent with its symptoms and pathology; henceforth, then, the terms Kumree, Paraplegia, Paralysis, and allied phrases, must be considered obsolete, but not the disease.

The author is anxious that the information may without delay be brought to the notice of all concerned, amateur or professional, with the view to the latter, at least, concentrating their thoughts and treatment upon parts which are really affected,

and forsaking those which are probably little if at all implicated, but treated, to the detriment of the dumb patient.

It is not now intended to fully discuss the subject, but as to its etiology, Mr. Poyser regards the exciting cause as purely climatic, or better, perhaps, atmospheric, producing in plain language a "chill" and specific consequences; yet he does not disregard the co-agency of predisposition, which possibly may be partly induced by certain dietetic influences whose nature we are not prepared to discuss.

However, with its causes known, and with its pathology understood, "Rheumatoid Arthritis," late Kumree, etc., should meet with many more happy results than formerly under intelligent treatment, and relative to which, one item, originated by the writer years ago (though then unacquainted with the true phases of the disease) and adopted with much success ever since by him and others to whom it was suggested, must be mentioned, indeed forcibly impressed on all who have the charge and treatment of horses in their hands, viz., the use of slings. Suggested to him in the recent epizootic at Meerut, Mr. Garratt affirms that without them nine or ten other cases would have died.

As soon as a horse is unable to stand or rise without assistance, he should be placed in slings, though he may have to be hauled up like a log, plunge violently, or hang helplessly, in them.

To the uninitiated this operation may in some cases appear rather cruel, but the patient will soon gain his feet and confidence, quieten down, and experience comfort from the support. The results are marvellous.

In Rheumatoid Arthritis horses unable to stand seldom remain long quietly recumbent, or in the other well-known position of rest, but generally struggle most violently, and become (hyper-æsthetic) intensely excited, which, persistently maintained, hastens dissolution, especially so where the heart is seriously affected.

The restraining influence, then, of slings in such cases is most beneficial, moreover they maintain the horse in a more natural position than he would or could place himself in, and obviate serious abrasions to the skin, etc., on all prominent parts.

Where the heart and the interior of the larger blood-vessels

are extensively implicated, the chances of recovery are rather remote.

With one or two exceptions all the slings in the veterinary infirmaries of the army in India are clumsy and most difficult to manage. The differential pulleys should be adopted throughout the service: they have an endless chain, and hang from a single (point) hook, beam, or bough anywhere; the chain pulled on one side raises the horse, on the other, lowers him, and locks itself when the hauling pressure is removed. They can be regulated to the fourth of an inch, which is a very important qualification, and by one person. The pulleys and chain are cheap and practically everlasting.

The Carabiniers have had a set in use about seven years, brought out (blocks and chains) by Mr. Poyser.

The main preventive measures to be adopted in the disease under note, demands the greatest care from veterinary surgeons in regulating clothing, and protecting against extraordinary vicissitudes of climate in the rainy and autumnal months.

Notwithstanding care in this direction, cases occur which are not expected, and thus we are inclined, rightly or wrongly, to accord the cause or causes a specific influence.

THE RELATIVE VALUE OF SUBJECTS TAUGHT THE VETERINARY STUDENT.

BY THOMAS GREAVES, F.R.C.V.S.

(Continued from page 399, vol. xix.)

Veterinary Teaching.

In further considering this subject, I feel I must not omit to bring prominently before the notice of my readers the fact that when the additional session, or third session of collegiate curriculum, was agreed upon by the Royal College of Veterinary Surgeons and teaching schools in 1876, I repeatedly urged what I considered to be a just and fair settlement of the question, that a distinction should be made between the students who had seen practice, or, in other words, who had served a term of apprenticeship to a veterinary surgeon, and those students who had not

had such advantages. That is to say, the former should be required to serve two sessions at college, and the latter should serve three sessions (see *Veterinarian* for 1871, page 920; also pages 107 and 249 for 1876). I considered it opportune and appropriate, since the clear understanding at the time was that this third session should be devoted exclusively, or nearly so, to the teaching of practical knowledge. However, I was overruled, and in my simplicity I hoped—nay, I was led to believe—that the practical student would be none the worse for the additional session and the additional expense he would be put to by having to stay at college one session more, and that the non-practical student must, of course, be greatly benefited by it.

Here is an instance in which confiding human nature sometimes errs and builds castles in the air, is lured on by specious and plausible theories to hope for results which experience afterwards proves were fallacious and not to be realised. It is useless to argue with those persons who maintain the contrary. We find that after this regulation has been in existence eight years, and the summer session inaugurated in 1872 to teach botany, practical pharmacy, the principles of shoeing, anatomy, and therapeutics, that the result has been anything but satisfactory. There is now a greater percentage of rejected students than was ever known in the history of our profession. To say the examinations are more rigid, or are too rigid, is not a satisfactory answer. We think this result ought to shake the prejudices of the thoroughgoing anti-pupilist.

It is not without a considerable degree of pain and sorrow that I write in this strain about my profession; it would be monstrous for any one to make these imputations if it was a fact, and a fact admitted, that the students of the present day, when they present themselves before the examiners, were a decidedly superior class of students, having a wider range or grasp of thought, more refined, more cultured, and more scientific than they were eight years ago; that they can diagnose and prognose disease and lameness more accurately, and can restore sick and lame horses to health and soundness much sooner, and with much more certainty than they did before they had the advantage of these additional courses of college tuition. I may say

if such was the fact, the whole body of the profession would feel proud of their colleges and of the change that was made. None would rejoice more than myself, for talent is always in demand; but when the contrary is the fact, surely that is a sufficient reason for bringing it prominently before my profession? I have heard it said that the present students are an inferior class or race of men than formerly; but what is the use, I would ask, of insisting on the students knowing the particular shape of a crystal, or of qualitative or quantitative analysis, while he is left in ignorance as to the difference in the nature of a hernia and an abscess, or a distended bursa containing synovia and an abscess containing pus? or whether five grains or five drams of calomel is the proper dose for a horse; when he tells you that a pint of croton oil is a proper dose, two ounces of belladonna, or half a dram of corrosive sublimate is a dose; or whether six drams or six ounces of Barbadoes aloes is the ordinary dose to purge a horse. Is such culture a blessing, I would ask? for such a one, so taught, to succeed in practice would indeed be a supernatural phenomenon.

I may be asked here, Are older practitioners perfect? Do they not frequently make mistakes? I answer, Yes; they occasionally do, but not such glaringly gross blunders as we have here; and it is often by those who have not had the advantages of seeing extensive practice, and probably being of that class who saw next to none before they obtained their diploma.

It is the merest affectation to deny that the practical efficiency of a student, as he presents himself before the examiners of the present day (speaking of the students generally), is decidedly inferior to what it was before the change was made; that our actual practical usefulness is passing away. We are suffering in many important particulars. The decay of the apprenticeship system shows that some other method is absolutely necessary, by which the usefulness and high reputation of our noble profession can be kept up. The necessity of a thorough overhauling of this unwieldy and cumbrous official machine is self-evident. This decadence is palpable to any man who has a capacity to decern and weigh evidence; he must arrive at the conclusion that, notwithstanding this third session, the extra summer term

and the fact that it is admitted on all hands that the subjects of botany, materia medica, chemistry, anatomy, physiology, histology, and morbid anatomy were never before taught more thoroughly than they are now (which, by-the-by, many of the members of my profession think and say the study of some of these subjects is only a waste of time of the student, for what good they are to him in after life?), we are not training up a race of men well fitted for veterinary work; our colleges fail to give an adequate education, complete in itself; the tuition they give is deficient in clearness, commensurate with its importance. Let the colleges import a little more science, and eliminate a little more of the practical tuition, and in a little time there will be none of the practical element left. The mere theorist rarely evinces practical wisdom; to give good advice implies no capacity to follow it. Teachers are not always to blame—there needs to be an intelligent understanding of what is really useful in our teaching. I know also that there are students who are habitually unobservant, who seem to be neither very worthy nor very worthless, who have no will of their own; who, it would seem, cannot learn; nor can they, unless they have a will made up to persevere and to acquire. The difference between man and man is not half so much the difference between talent and talent as between will and will. The will determines the moral character, and, therefore, the intellectual success. The possession of brilliant intellectual qualities often proves a bar to worldly advancement. Give me a firm, steadfast will, with moderate talents, and I will accomplish more than the possessor of the most brilliant qualities with an inferior force of will. They are more or less shiftless, idle, unenterprising, or improvident; in truth, the possession of ability without a corresponding will, is too apt to open the door to indolence, waywardness, and want of mental discipline. There is a fatal facility about the man of talent—especially if his gifts are of a popular kind—against which he cannot exercise too much caution, lest it betray him to his mental ruin.

I am of opinion, therefore (and I am not alone in this opinion), that this regulation of an additional year to the college term, and the additional summer term, has been fairly tried, and has

proved a failure—a decided failure ; and by parity of reasoning, I hesitate not to say that if the collegiate curriculum was extended to a still further period, of say four, five, or six years, we should arrive at a state no nearer satisfaction or practical efficiency of the student, than we have now. The mind of the man who is thoroughly acquainted with classics and science, but who is deficient in business tact and business habits, is nearly always found to be out of harmony and out of sympathy with the minds of horse-proprietors, horse-owners, and horse-keepers. In considering this subject this fact must never be forgotten, that our profession is a peculiar calling. It is a special profession, requiring a special kind of tuition. To many excellent men of the above type, when they have had experience of life, the sad earnestness and vivid exactness of this truth has flashed upon them. To be well educated is not merely to possess this or that branch of knowledge; it is more—it is to have the mental powers developed, strengthened, and disciplined ; it is to have gained habits of accurate thoughts on the business of life, and thus to have stored in knowledge as a result, and as the basis of a yet wider range of mental pursuit. These powers or habits, once acquired, are available for any given mental exertion. I am in favour of pupilage, but not compulsory pupilage. We have no right to ask where, or how, or when the student obtained his practical knowledge, so long as he has it.

One of our ablest teachers we have of the present day devotes from a quarter past nine to about one o'clock, nearly every day, instructing the senior students in anatomy, practice, conformation, symmetry, morbid anatomy, pathology, etc. Now, I cannot tell that I ever heard anything in my life that pleased and delighted me more than this did. It must be true, since he says so, but I think it is fair and reasonable to conclude that students who have received this instruction, this persistent diligent course of four hours daily, for say six months, must have every disease, every phase of disease and lameness (their pathognomonic symptoms, nature, and treatment) that the horse and all other domestic animals are liable to, at his finger's end, so to speak ; or, in other words, they should be as A B C to him, and that he would be able to explain, and answer any and every question an

examiner could possibly put to him on diseases and lameness of our domestic animals with ease, and satisfactorily. But is it not very strange this is not so? nine-tenths of the rejected students are rejected on the practical or pathological subjects.

I now come to the point, and ask, Is it not our bounden duty to inquire into the cause of this failure, try to arrive at a safe and sound judgment, and devise a remedy? It is a matter of the utmost seriousness, as it affects the future character of the veterinary profession; it is of national importance; the very existence of our professional reputation is at stake.

The real strength, and power, and greatness of our profession lies not so much in our high scientific attainments as in our *actual usefulness, the real value of our services*, and these services admitted and acknowledged by our Government, and by all who employ us. Such a consummation is not unconceivable, but it is very much feared it cannot be obtained by our present method of tuition, whatever some pessimistic observer may say to the contrary.

At one college, the junior students have four lectures a-day: I was pleased to hear this. At another college, only seven lectures a-week are given the junior students. I ask, in this case, is there not a complete waste of most precious time? Is it not all but certain that these youths, with so much leisure, so much unoccupied time on their hands, will get into idle, loafing habits, walking the flags of the street for want of being better employed? I would respectfully ask, Could not this time be utilised for the benefit of these students? Have we not all heard of the mischief, the mental, bodily, and spiritual ruin it creates? Cowper says the colour of our whole life is generally such as the first three or four years in which we are our own masters make it. Lost time, I hold, is not lived. Is it not, let me ask, often under these conditions where immorality commences?

The process of lecturing, demonstration, experimenting, and cramming is unquestionably necessary in the teaching a knowledge of the various scientific subjects I have referred to above (whatever high value we may or may not put on any one or on all of them). The thorough teaching of horse and cattle pathology and treatment was held by Professors Coleman, Dick,

Sewell, Spooner, Messrs. Youatt, Percivall, Wilkinson, and many others, to be *of by far the greatest importance of them all* in making a man a good business man—one who will be a successful man, a credit to himself and to his profession. To accomplish this a very different method of teaching is required. The mind and the fingers of each student, student by student, individually, must be brought into close contact with every kind of case—shown, and instructed *to do it himself*—under the close attention and instruction of a competent, firm, and untiring, painstaking teacher. We must get a clause of compulsory education enacted. This kind of teaching must be kept up hourly and daily, systematically, methodically, many hours a day daily, for six months at least, so as to render each student familiar and conversant with every phase of disease and lameness. This system of tuition should be going on all day over—every day—upon both the living and dead subjects ; every possible subject and particular should be A B C to the student ; every point and every matter that an examiner could touch on should be shown to them and explained over and over again, not only in lectures, or demonstrations, or cramming—before sixty or eighty students at a time, many quite indifferent about it, BUT IN ACTUAL WORK—a regulation duty. The discipline of life—its rugged experience, its tempests, its trials—all go to make a man ; yea, the successful man invariably bears on his brow the marks of the struggle which he has had to undergo. The college method of teaching practice will never of itself, as taught now, enable him to obtain that amount of solid pathological and practical knowledge to enable him to make his way in the world when left to himself. The practical student's knowledge may be corrected, improved, increased, and rendered more effective by the college teaching. I do not say Utopia is a land not so very far off. I say by this system it will be nearer ; but the present teaching, by itself, is a system fraught with danger, and is seldom productive of lasting benefit.

On this subject I wish to direct your attention to that most excellent introductory address, delivered by Professor Brown at the Royal Veterinary College, on October 1st, 1884 ; after saying "May I be permitted to say fatal—facilities for acquiring know-

ledge," he goes on to say, "under this extended system of tuition you are not asked to seek the mental food which you require—it is collected for you with elaborate care, triturated into a fine assimilable condition, and positively thrust into your mental stomachs very much in the same way that men feed poultry for the market. It is quite conceivable that in taking your learning in this luxurious way you may fall into a somewhat somnolent condition—in short, that you may over your studies fall asleep and work them out in a dream." Now, it is very good of the Professor to make the royal road to learning so easy, so soft, so velvety to the feet. Although it is a matter of extreme delicacy to question a learned Professor's conclusions, I would respectfully ask, Is this system of imparting and acquiring knowledge without labour the most lasting, the most enduring, or the wisest? Is it not enervating in its tendency? There may be one student in a hundred who possesses an extraordinary retentive memory, who will remember this cramming for a short time. Knowledge gained in this easy way, we are told, is always very evanescent; to take root in your understanding it must be by a process of assiduous, intense application, a work of time and close observation, so as to sink deep into your memories and bear its fruit throughout life.

Professor Robertson says, "The student can acquire practical knowledge after leaving college, that in his daily avocation he is gaining experience, in his daily work he has given him opportunities of improving himself; but with reference to all the other subjects he will have no opportunities of improving himself, therefore it is the more important that he must be taught them efficiently before leaving college." Now, we grant him that there is a good deal in this view of the case; but our contention is this—that some of these other subjects he seems to think so highly of are unimportant, and are dwelt upon too elaborately, wasting the time of the student—time that could, and should, be put to much better and more useful advantage. I will instance to him how it acts. I, as a general practitioner—and I know of scores of others—would ten times over rather receive a youth of sixteen, seventeen, or eighteen years of age who had never seen any practice at all, than one of these gentle-

men from college, with a diploma, who wanted improving. The one, of course, is never entrusted with the entire care of a case, or to attend a case until he has been in the place some time and seen his master do a good deal, and he himself has become accustomed to the work under his master's supervision. In length of time he may be sent out to see some simple case by himself, and thus gradually assume a position of trust and responsibility, which he has by degrees become competent to occupy; but the other fully graduated or qualified veterinary surgeon, having studied the full time at college, and obtained his diploma, is looked upon as a man. This man often assumes the possession of a knowledge of which he is sadly deficient; he is entrusted to see and attend some simple cases—it is natural to place more responsibility on him than you would on the boy. What is the consequence? Nearly every case he goes to see he makes some glaring blunder in his manner, in his diagnosis, or in his treatment, and unless you are close upon his heels, and correct his blundering, your client is so displeased, dissatisfied, and disgusted that some one else is called in and you lose client after client, each worth perhaps £20 or £40 a year to you. This is one effect or result of the Professor's method, but if such a one goes into practice on his own account the result is still worse, he lowers the status of our noble calling, he brings discredit and disgrace, not only on himself, but also on the college at which he matriculated, and on the profession generally.

I have read with much pleasure, and beg to thank Mr. John Penberthy for his trouble and kindness in making the statements he has made, statements which must be true since he says so.; also Mr. E. T. Shave, for their criticisms in this January's VETERINARY JOURNAL on my papers; it is this kind of criticism, undertaken in a fair and gentlemanly spirit, that I expected and hoped for; I wished to put the colleges on their mettle, and force them to produce, if possible, students more useful and more really fit for veterinary work. I consider their papers fair and legitimate efforts to throw light upon and elucidate the deadlock into which we are fast drifting, with the exception of a few instances in which they have done me a glaring injustice, which, however, I pass by without notice, asking only one question

of Mr. John Penberthy, viz., How is it, with all these great and varied advantages, Colleges do not produce a greater percentage of efficient practical students? How is it there is such a very large percentage of rejections, and of those who manage to squeeze through, that fifty per cent. of them are found utterly incompetent to enter the army? But what am I to say of another precious document—a reply of unanswerable argument, of logic without a flaw, from the same locality, from one who ought to be looked up to and be an example to us all, from whom we expect to find high and noble thoughts and sentiments, instead of which we find fifteen lines brimful of animus, and remarkable only for low, common, vulgar gibes, which constitute the whole weft and warp of this precious reply?

Editorial.

ABORTION IN CATTLE.

THE seemingly increasing rate of abortion in cattle, the greater attention which is paid to cattle-breeding, or the enhanced value of bovines as milk and flesh producers—or all three causes combined—have gradually drawn attention to the heavy losses suffered from the occurrence of this accident in these animals. Of all the domesticated creatures, the cow is certainly the most liable to suffer from abortion and premature birth, and the liability appears to be almost as great as in the human female, though the latter, one would be inclined to think, is exposed to more morbid and varied influences and predisposing causes. This special aptitude of the bovine over all other species has been attempted to be explained on various grounds—some supposing it to be due to anatomical, others to physiological, and others, again, to the psychical or mental peculiarities of cattle. Whatever it may be ascribed to, there can be no doubt as to its existence, and the readiness with which it can be brought into play is sometimes manifested in a very startling manner. The influences which bring this unfortunate aptitude conspicuously under observation are many, and they may be classed chiefly as mechanical, physiological, and pathological. With regard to these, the most complete and most recent information is to be found in Fleming's "Veterinary Obstetrics," in which everything pertaining to the subject is fully discussed in its aspects of accidental, sporadic, and enzoötic and epizoötic abortion. To this work we refer our readers who desire to learn all that is at present known of this accident; our particular object now being to direct attention to one of its possible causes, which certain sanitary measures may, if promptly and carefully carried out, possibly remove—we allude to infection.

As Fleming has pointed out, the causes of sporadic abortion may be grouped into external and internal, and consist in physical and physiological, as well as pathological influences, which are well known to produce this effect. These he has described in detail; but another cause to which he has urgently directed attention, and to which the occurrence of extensive abortions appears to be due, is infection, owing to the presence of a contagium, micro-organism, or whatever else it may be termed. The notion that certain forms of abortion were caused by an infective element is by no means novel; as Fleming has shown that at least so long ago as the end of the last century, it was believed to play the principal, if not the sole, part in this morbid process. But the accumulated clinical evidence of the last fifty years, together with the results of microscopical and patho-experimental research, have established to a great, if not a conclusive, extent the presence of an infective agent in one form of abortion. Therefore it is that veterinary surgeons who are consulted with regard to this accident, whether in the way of prevention, arrestation, or cure, should, after considering the other causes alluded to by Fleming, give their special attention to this, and follow as closely as the circumstances may permit the measures he has counselled to meet the requirements of such cases—these consisting in treating abortion in a herd of pregnant cows as we would a very infectious malady, special steps being adopted to meet the special chances or modes of infection.

DISEASES OF STOCK.

In the course of his opening lecture to his students, Principal Walley, of Dick's Veterinary College, said:—The scientific aspect of the great question of battling with disease in stock has been placed in an entirely new position of late years by the discoveries which have been made in connection with the causation of contagious diseases. The discovery of the bacillus of Anthrax was probably the starting-point of this new knowledge, and not long after this discovery Chauveau's experiments in connection with the contagium of Variola, proving as they did that its propagation was due to solid particles of matter, gave a new impetus to the inquiry. The *germ theory* became a craze then; it is none the less so now. As the gardener looks for the seed by which to propagate the plant, so the pathologist began to look for the seed of every disease whose characters warranted the assumption that it was of germ origin. I need not, at this time of day, point out to you how pre-eminently successful the search has been, but I must point out to you that, notwithstanding this, the millennium is very far from being reached. The success attending vaccination in the prevention of Small-pox led to the hope that all other diseases of a similar class would, in the end, be dealt with in a similar manner. The apparently brilliant success of Pasteur with Anthrax virus encouraged the hope that at last we had within our grasp a potent weapon of offence and defence; and now endeavours are being made to muzzle the bear of infection in connection with diseases widely different from Anthrax in their general characters. I would here ask, has the hope to which I have alluded been realised? I venture to assert that it has not; that in spite of the immense labour, and the wonderful amount of perseverance and of brain energy that have been brought to bear upon it, the ends gained have not been entirely commensurate with the means used to gain them. In our dealings with the contagious maladies of animals the question

naturally arises—What are the best and most direct methods to adopt for their prevention and suppression? Are we to institute interminable inquiries as to their nature, and to carry out innumerable experiments to prove this theory or to disprove that? to sacrifice hundreds of animals with the object of providing a physiological antidote to them, and when we have, as we think, found it, have some other inquirer breaking in upon our stronghold and telling us that it is all a mistake, and that while we have been labouring to bring forth and perpetuate this mistake our enemy has been steadily stealing a march upon us? or are we at once to take the bull by the horns and arrest his further progress by main force, to grasp him by the throat and strangle him out of existence? This, gentlemen, is the all-important question for us to consider. When Sheep-pox made its appearance in this country, over twenty years ago, there were then, as now, two sets of sanitarians—one set endeavouring to suppress it by purely scientific means, the other by purely practical. Which of these was successful? Not the former. When the dreaded Rinderpest came amongst us in 1865, the same battle was fought—the "vaccination point" of the doctors *versus* the "pole-axe" of the veterinarian; and of these two, which, I ask again, gained the victory? It is a matter of history; it was a lesson so plain that it need never have been necessary to repeat it; but repetition has been required, and will be required again. In the case of Glanders, too, scores of years have been spent in endeavouring to find a therapeutic antidote—a cure; and valuable human lives have been sacrificed in the struggle. Now we know that by putting a few practical regulations into force we can not only "scotch the snake," but "we can kill him also." In the case of Pleuro-pneumonia in cattle, science, partly-blinded certainly, endeavoured thirty or forty years ago to get the mastery by creating a mild form of artificial disease in healthy animals, which should render them proof against the more virulent natural form. The success was only partial, and the same experience has been bought more than once since; and in those countries where it has been most extensively tried it has yielded to more purely practical measures, and notably so in the Netherlands. And what about those dread diseases, Rabies and Anthrax? While in France, science, in the shape of a Pasteur, is putting forth her best energies to find an antidote for Rabies, and is thereby *playing with the malady*, we, in this country, or, I should more particularly say, in this city, taught the lesson that it could be exterminated by purely practical means in a much less space of time, and with much less attendant danger to man and suffering to animals than it can ever be by the adoption of purely scientific measures. True, it may be said, our measures demand a holocaust of victims, but these victims were dangerous and useless pariahs. And is there a smaller demand in the working out of the system of Pasteur? We did not tickle the medulla oblongatæ for inoculative and reinoculative purposes of our victims; we effectually paralysed and annihilated their powers for harm in the best and most practical manner, viz., by destroying them; and if measures had been adopted, as I would have had them adopted, promptly at the commencement of the epizootic, there would have been a shorter tale of destruction to tell than there was at that time. While again, in France, hundreds of victims have been sacrificed in the search after an antidote (discovered, it is triumphantly said) to Anthrax, we in this country find that by the adoption of practical prophylactic measures we can attain equally favourable results. And I would have you bear in mind that success has not by any means been attained in the scientific prevention of Rabies any more than in Anthrax. The former inquiry is but yet in its infancy; the latter has got past the stage of inquiry, and, according to some authorities, is an accomplished fact; but what do we find? Pasteur and others supporting the practice of protective inoculation; Koch and others condemning it, and

furnishing indubitable proofs of its frequent failure, especially where the spores of the microbe are taken in by ingestion. The discovery of the bacillus of Tuberculosis was a grand discovery, but it is a fact with which we were inferentially acquainted long since, and it has not added, nor can it add anything, to our knowledge in a prophylactic point of view. Certain it is that the discovery has been of great use, clinically, in human medical practice, but it is of little practical clinical value in veterinary practice. I am quite aware that a series of cases have been recently recorded, tending to show that it is of practical importance to the veterinarian; of these I can only say that, if we had to wait until we detected bacilli in the expectorations of our patients, we should, as a rule, have to wait until the time had passed when it would be a disgrace to the veriest tyro in practical diagnosis if he had not succeeded in forming something more than an opinion as to the nature of the malady from which his patient was suffering.

Another organism which has attracted much attention of late is the comma bacillus of Cholera, and yet even before the ink which was used for writing the report of the discovery was well dry, we had a declaration from no less an authority than Dr. Klein, to the effect that this bacillus is not special to Asiatic Cholera. Even if it were so, it is questionable whether it could ever be utilised for prophylactic purposes.

In addition to these more serious germ diseases, we have other maladies affecting animals which are due to specific organisms, viz., the *ray-fungus* disease of cattle, and *roup* of poultry (both due to special forms of fungi). Now, while it is highly important that we should know the exact nature of the causes of these affections, the knowledge does not put us in a much better position, so far as prevention or even cure is concerned, than we occupied before. We can only resort to local means of destroying the fungus—as was done prior to our knowledge of its actual nature—and to the adoption of such methods as will improve the surroundings of its victims, and preventing the propagation of contagion.

Black-quarter and Red-water in cattle, Louping-ill in sheep, and abortion in cows, have each in their time been attributed to the influence of certain organisms; but assuming the statements made in connection with these affections to be true—which in more than one of them we have much reason to doubt—does the knowledge give us any greater hold upon them in reference to their prevention? We know that each one of them can be largely prevented by the adoption of practical measures, which, directly, do not affect germ growth and multiplication.

Now, gentlemen, in all that I have said I do not wish for a moment to place a small value on the efforts which have been made in various parts of the world to discover the true nature of the most serious class of maladies with which we have to deal. In warfare a correct knowledge of the habits, the strength, and the character of an enemy gives a commander the means of grappling with and overcoming him; and so it is with our daily battle with contagious diseases. What I want to impress upon you is the necessity of making yourselves thoroughly acquainted with the best means of dealing practically with this enemy, and our success in this direction in the past is an earnest to you of what may be accomplished in the future by energetically and vigorously putting appropriate measures into operation.

In dealing with sanitation, viz., "The sanitary arrangement of the buildings used for the housing of animals and the supply of food to animals," I would first observe that it seems somewhat remarkable that in this advanced period of the history of the world there should be any room for adverse criticism on our knowledge of such subjects; but such is the case, and we must deal with it. One would think that at least an elementary knowledge of sanitation was possessed by all stock-owners, but it is a branch of their education

which seems to have been woefully neglected, or some of them have not taken advantage of the opportunities afforded to them of becoming acquainted with its details. In this age of economical science, everything is sacrificed to gain, and sanitary laws are sometimes set at naught in order that one product of the farm shall be rendered as valuable as possible, even though it may be at the expense of the health and comfort of the animals which are made to contribute to this enhanced gain. I refer to the system which has recently sprung up of "feeding animals upon dunghills under cover." In the experience of the past, all feeding and breeding establishments had their wintering sheds supplied with outer courts. In the sheds themselves the animals were supposed to obtain a comfortable and dry bed, free from the effluvia and moisture of the dunghill; while in the latter they obtained the amount of exercise necessary to keep them in health, and at the same time were the means of preparing a large quantity of valuable manure for use on the farm. Now, the idea, in some districts, seems to be to feed them and house them night and day under the same roof, allowing their liquid and solid excreta and all waste feeding material to accumulate in one seething heap, reeking of all the vile odours that can possibly be manufactured, and steeped from its foundation to its surface with liquid filth.

This description may seem an exaggeration to some who have not witnessed it, but it is within the truth. I have within the present year, in this country, seen one of the finest cattle sheds a man could wish erected, with from two to nearly four feet of semi-solid manure, saturated with urine and in a vile state of decomposition, accumulated on its floor, and the liquid filth collecting in holes made for the purpose here and there over its area; while around its outer sides the same material was quietly oozing out and flowing unchecked over the gangways, and even into the adjacent byres. I have seen cows standing with their blood at such a fever heat as to send the temperature up to 103-4° F.; and young stock confined in a place which could only have been beaten for its insanitary condition by the black hole of Calcutta, with every possible inlet and outlet of air, and very nearly all light, blocked out, and the urine of the animals allowed to accumulate in one corner of the vile prison.

I have again seen animals confined in a place in which the liquid filth was allowed to collect in a kind of cesspool, and from this the imprisoned animals quenched their thirst, with the result that many of them succumbed to blood-poisoning; and lastly, I have seen in what is sometimes called "enlightened England," a feeding shed arranged with the midden in the centre, and the animals standing, tied up, in rows around it, and that, too, on the home farm of a landed proprietor. Such things seem almost incredible in this nineteenth century, when we think that our forefathers knew so much of sanitary science as to lead them to see the necessity of providing even their pig-styes with an inner and outer compartment.

In reference to the food supply of our domestic animals, do we not find that in many instances breeders of stock are utterly ignorant as to the physiological wants of the creatures upon which they are so largely dependent for their own well-being? I grant that very often the feeder is not to blame; he provides food such as he has been led to expect is suited to the purpose to which he applies it, but he does not consider the digestive or assimilative capabilities of the animals placed under his care, and in this way he often meets with serious and unexpected losses. And more than this, the tendency has grown of late years of purchasing very large quantities of what we may call prepared foods, *i.e.*, cakes and meals and other kinds of manufactured feeding stuffs. These are in themselves splendid material for feeding purposes, but how often are they made the channels by which

inferior stuffs are got rid of at superior prices, to the detriment more frequently of the buyer than the seller.

Every day is the attention of those who are engaged in the investigation of the etiology of disease more particularly directed to the truth of what I have stated. Cattle are found dying after having partaken of a feed of a particular kind of cheap meal or of cheap cake, and on examination these are found to be mixed with different kinds of deleterious matter, in a state of chemical change, or swarming with countless millions of bacteria. Surely it were better that farmers should devote their attention more largely to this subject than they have done, and not take everything they are told by interested parties as gospel. I do not wish, nor do I intend, by these remarks to injure sellers of such material, for I am perfectly well aware that in very many cases they are totally ignorant of the fact that the wares they vend have anything of a deleterious nature about them, and that, figuratively speaking, "there is death in the *mess of pottage* they have prepared." But when such things are frequently brought to light, it behoves both sellers and buyers to be on their guard.

The last division of sanitation I wish to touch upon to-day is our "food supply." Gentlemen, I should have been pleased had I been in a position to say to you on this occasion that the representations which have been made and the labour which has been spent, in our endeavours to put this matter on a more satisfactory footing than it has hitherto occupied had been successful, but I have still to say that it stands pretty much where it was when I last addressed you on this subject. Certainly one step in advance has been gained, inasmuch as probably one of the largest veterinary gatherings which ever met in this country (the meeting of the British National Veterinary Medical Association, held in Manchester in August) adopted certain resolutions, which I had the pleasure and privilege to propose, tending to place this subject in its proper position, and to authoritatively show to those who have legislation on such subject in their hands, the steps that ought to be taken for the protection of our poorer brethren from the evil effects of unwholesome and injurious food. As matters are now, vile traffickers in a vile traffic are privileged to carry on their disgusting, and often death-dealing, trade with impunity, and to gloat over their ill-gotten gains to their heart's content.

Of equal importance with the foregoing is the subject of "humanity to animals," and I will preface the remarks I have to make under this head by observing that the veterinary surgeon is nothing if he is not "humanitarian." His daily life, his hourly warfare, is with suffering, and he would be a brute indeed if he did not yield to the softening influence exerted by the continual contemplation of pain, which he is ofttimes powerless to relieve, and if such suffering did not give him a more extended sympathy with the helpless brute creation.

There are certain kinds of interference with the conscience and freedom of action of professional men which must be strenuously opposed, and feeling, as I do, that much unnecessary suffering is caused to animals by the performance of needless operations, I must nevertheless confess that it is painful and annoying to see men stand up in a public meeting as the defenders of the animal world, and impute sordid and mercenary motives to those whose whole life is, as a rule, one of self-abnegation. I refer here to the charges made against our profession in connection with the subject of docking, at the meeting in Manchester to which I have before referred. I could not help regretting at the time—I regret it equally now—that a feeling of antagonism should have been stirred up between a most useful and most benevolent society and our profession, by the ill-timed and ill-judged observations of those who were supposed to represent the views of the

former; and I sincerely hope that it will never again be my lot to witness the repetition of such a painful scene.

It is not my intention to refer further to the matter of "docking horses." I have already expressed myself publicly on this subject; but I must take this opportunity of considering, though it may be briefly, another and equally important subject, viz., the "over-stocking of the udders of cows."

This is a matter upon which, one would think, there ought to be no difference of opinion amongst professional men; and while I am prepared to allow that every man has a right to his own opinion in all things, I must at the same time declare that I cannot understand how an educated veterinary surgeon, with a knowledge of physiology, and a knowledge of the laws which control and guide the faculty of sensation, can be found to defend such an unwarrantable practice, and even to refer to nature herself for a warrant for such practices. But so it is, and very specious are the arguments used, as they always may be used, in defence of the cruelty. The question is, in the first place, asked in our professional journals, by one of the defenders of over-stocking, What about nature? How do these animals get relief who are unfortunate enough to lose their offspring immediately they are born into the world? I admit that the question is a specious one, but I do not admit that nature's cruelties to animals in a state of nature are, in any sense of the word, a warrant for our cruelties to animals in a state of domestication. It is argued that nature relieves herself by the pressure of the milk upon the distended teats, leading to relaxation of their sphincters, and thus providing an outflow for the retained milk, and relief for the overcharged gland; but is this always the case? What percentage of animals would there be that would not gain relief in this way? Let the records of the daily practice of those who are engaged in the treatment of animals in town dairies give the answer. Why do we meet with so many cases of Mammitis in this city? and to what is it attributable? Largely, I answer, to the absurd, injurious, and cruel system of over-stocking, which is so frequently practised by the sellers. But, it may be rightly asked, has the buyer nothing to do with this? The answer is an affirmative one, for if buyers of over-stocked animals were not forthcoming it would not be worth the while of sellers to practise the system. A second argument is made use of, to the effect that there is no pain in overstocking. Such an assertion to me savours of a melancholy ignorance of the structure and function of secerning glands in general. The udder is an organ of highly complex conformation, provided extensively with sensory nerves, and of great vascularity. Its acini are so intimately connected with each other that it is almost impossible that relief should be gained in the usual way, *i.e.*, by swelling, when it becomes the subject of active hyperæmia or of inflammation; consequently, whenever the outflow of milk is prevented, pressure is exerted upon the acini and upon the blood-vessels; tension follows, and after this, pressure upon the terminal ends of the sensory nerves, with the natural result, acute suffering. This latter is shown by the stiff, straddling, and sore gait of the victims of man's cupidity; by the ofttimes quickened pulse, the heightened temperature, and the unwillingness to move, observed in such cases. Some years ago I was called upon to examine a flock of blackfaced ewes, of whose number between sixty and seventy had been brutally mutilated by some unknown miscreant, by the removal, wholly or partially, of their teats; and as the wounds caused thereby became healed, the outflow of milk was effectually prevented, and at lambing time (the lambs not being able to draw off the milk) the poor animals were found wandering mopishly and miserably about the field, careless of their offspring, refusing to feed, and grinding their teeth in a most heartrending fashion. Was there no pain here? and, if not, whence the suffering? But it may be

said, Ah ! here you had the outlet for the flow of milk hermetically sealed ! Granted all this, and giving the benefit of the doubt, to as great an extent as is possible, to the distended udder with unsealed teats, I have no hesitation in asserting that, even when the milk flows naturally and freely away, even then, I say, pain is produced. Unfortunately, the poor cow cannot speak ; but all females are not in that defenceless position, and we can fortunately get indubitable evidence, by analogy, of the great pain which is caused, even when the sphincters of the teats are relaxed, by allowing the mammary gland to become distended beyond its natural capacity, and we can even gain valuable confirmatory evidence on this point from the effects produced by the over-distension of distensile organs in our own bodies ; and the heaviest punishment I would wish to see inflicted either upon over-stockers or upon those who defend the practice would be that they should be placed in the position of the over-stocked cow for a period of twenty-four or thirty-six hours.

Another remarkable piece of evidence in favour of over-stocking, or rather in defence of the operation, is sought to be drawn from the natural process of drying of the udder when cows are turned off milking for the purpose of fattening. It is stated that the natural result of allowing the milk to accumulate in the udder is the suppression of its secretion by the pressure exerted on the gland cells. Doubtless this is so, but does it not occur to the mind of any one using such an argument that it has two edges, and that the very fact of this suppression, following the accumulation of milk, is an argument of the strongest nature against the system of over-stocking ? and that in proportion as the glandular function is interfered with by over-stocking will be the loss to the purchaser of such animals ? Gentlemen, I have one hope, and that is, that no pupil of mine will ever be found defending in a court of justice an absolutely indefensible and highly reprehensible practice ; or, by defending it, indirectly encouraging the unscrupulous trader to resort to mechanical means (such as the insertion of rice into the teats or the application of elastic bands) of arresting the outflow of milk from the udders of the unfortunate victims of his cupidity.

In conclusion, I would urge upon you the necessity of using your best endeavours to make yourselves acquainted with all the bearings of medical and surgical pathology ; of looking (*not glancing*) carefully into the nature of every diseased process which may come under observation, and of investigating for yourselves every case and every specimen of an interesting nature that may be brought to your notice, either here or elsewhere. Depend upon it, that your future success in life will be in exact proportion to the use you make, in your student days, of the faculties with which nature or nature's God has endowed you ; and that in like proportion will these faculties fail if you allow the rust of indolence to accmulate about them, or the friction of indulgence to wear them prematurely away.

THE BACILLUS OF MALLEUS HUMIDUS, OR GLANDERS.

SCHUTZ and Löffler have proved the existence of this bacillus, which is similar to that found in tubercle, but differs from it in possessing a specific tincturing power. Several days afterwards Bouchard in Paris, too, described micro-organisms as the cause of *Malleus humidus*. These micro-organisms were said to be roundish, somewhat elongated formations, cocci, which are constantly in lively movement in the liquor, and finally group themselves in the form of chaplets. These researches were made solely with animals affected with Glanders. Several days since a female rag-picker was conveyed to the Vienna Hospital Rüdolfsstiftüng. On her face and body were pustules somewhat larger than Variola pustules, besides nodules in the skin and in the

subcutaneous tissue, from which matter oozed. *Malleus humidus* was diagnosed, and Dr. Weichselbaüm found in the matter from the pustules, as well as in the discharge from the nose, in the blood, and in the urine of the patient, the same bacilli as Schütz and Löffler had described. Weichselbaüm tried, with complete success, pure cultures of this bacillus on flesh-pepton-gelatine, on flesh-pepton, agar-agar, and on potatoes. The cultures grow slowly at ordinary temperatures, but very quickly at the temperature of the blood. On sterile potatoes the bacillus forms, first, light-brown, and then dark-brown, colonies. Even the formation of "Sporen" could be remarked; and, finally, little rods ("Stäbchen") were seen, which dissolved and resembled cocci grouping together. All inoculations with the latter cultures into rabbits, sea-hogs, sheep, etc., produced *Malleus humidus*. Consequently, Dr. Weichselbaüm is of opinion that these bacilli are those of that disease. As to the micro-organisms of Bouchard, he points out that the French inquirer employed broth for his cultures, and doubtless made his inoculations with polluted material. Professor Csokor, of the Vienna Veterinary Institute, lecturing on the 9th December on Glanders and on Tubercular Consumption of Horses, referred to these researches. As to the bacillus, he said he was not in a position to agree entirely with Schütz's statements. He did not find any specific quality in Schütz's bacillus. That it forms "Sporen" is not surprising, as all bacilli which multiply according to the leptothrix form do so. If all error is to be excluded, the researches must be made when the object is still fresh or mixed with glycerine, or with magdala-red, nor must it have been heated or dried previously.

A NEW SEPTIC ORGANISM.

THE anniversary meeting of the Royal Microscopical Society, on February 11th, was rendered unusually interesting owing to its having been selected by the President, the Rev. Dr. Dallinger, as the occasion for describing the life-history of another of those marvellous organisms known as monads, which divide with bacteria the duty of feeding on and breaking up putrescent matter of animal or vegetable origin. Dr. Dallinger has for nearly twenty years been assiduously studying, in association with Dr. Drysdale, of Liverpool, and alone, the lowest forms of life, with the highest powers and most varied appliances of microscopic research; and, being possessed of a tolerance of continuous observation which has never been surpassed, he has, when opportunity arose, followed for days in succession the organisms whose history he wished to trace, and which had eluded all other methods of investigation. On some occasions the two observers, continuously replacing one another, have never taken their eyes off the objects under view for from eight to sixteen days consecutively; and their patience has been rewarded by a completeness of success and a solidity of addition to knowledge which equal the best German achievements in science. The complete life-history of eight monads, about which next to nothing was previously known, have been now laid before the Royal and the Microscopical Societies; and, in addition to striking improvements in methods and apparatus of research, Dr. Dallinger has demonstrated, not only the varied modes of fission by which, every two or three minutes, these creatures double their numbers in the effort to cope with the quantities of decaying matter on which they thrive, but also the existence of a true sexual mode of multiplication, resulting in the production of a multitudinous crop of incredibly minute spores, only barely visible with a magnifying power of 5,000 diameters. These spores have been found to be indestructible by even a boiling heat in some cases, and have accounted for very much of what used to be known as spontaneous generation; and their steady growth into the likeness of their parent forms

has been witnessed again and again until the ordinary, non-sexual mode of multiplication by fission was re-established.

Dr. Dallinger has found comparatively high infusorians, such as paramecium, capable of thriving in a medium containing merely inorganic salts and tartrate of ammonium, which fact alone upsets a cherished definition of the difference between animals and plants. Commencing his address on Wednesday night with a review of the position of bacteria and monads in biology, Dr. Dallinger went on to remark that whoever had studied the same field of septic bacteria for a week or a fortnight without change of conditions would know the strange complexity of relations that are seen to arise, and until this complexity of relations in common forms was understood assured progress was impossible. How the bacteria are inter-related, how far they are mutable and under what conditions, and whether functional changes are as readily, or more readily, induced than morphological changes visibly perceptible, were questions of the highest moment awaiting solution. The forms which give rise to specific diseases were now being vigorously and almost exclusively studied, to the detriment of investigation into forms not connected with disease, from which, however, they must have arisen at some past time. The discovery alleged to have been made by Hans Büchner, in 1880, of the convertibility of the bacillus of the terrible disease Anthrax, or Splenic Fever of cattle, into the innocuous bacillus subtilis which it outwardly resembles, and the converse, appears so startling to even a Darwinian, that there must be error somewhere ; for if the law of actual variation, with all that is involved in survival of the fittest, could be so readily brought into complete operation, and yield so pronounced a result, where would be the stability of the organic world? There could be no permanence in anything living. Dr. Dallinger agreed with Dr. Klein in considering Büchner's so-called results utterly improbable. It was of the utmost importance, however, to discover the true relations between such organisms, and the effect of changed conditions. Whether the changes produced by Pasteur in his attenuated virus were true biological changes or a mere physical and accompanying chemical attenuation consequent on enfeebled nutrition, or extended dilution of some element of the virus, and consequently not involving permanent change, was still unsettled ; but Dr. Dallinger inclined to the latter view.

The new organism referred to above first came under notice about four years ago in an exhausted maceration of cod-fish, which had decomposed in a broth extracted from the boiling of rabbits, long kept at a temperature of 90 deg. to 95 deg. Fahr. By a complex and ingenious arrangement, not only was the drop of fluid under examination, but also the vapour surrounding it, kept at a necessary constant temperature not varying more than $\frac{1}{10}$ of a degree Fahrenheit, and thus its form and movements were fully ascertained. The sub-oval body, lens-shaped, destitute of internal organs, measured about $\frac{1}{10000}$ of an inch in length, by $\frac{1}{10500}$ of an inch in breadth ; but it had no fewer than six long, thread-like flagella, or motile organs, like whip-lashes, each three times as long as the body. One very remarkable mode of locomotion resulting was comparable only to wave-like leaps, reminding the observer of the movements of a shoal of porpoises. The organism was never attached, but by a free darting down upon and away from minute particles of decomposing matter by large numbers, the matter was in half-an-hour visibly reduced in size. "No sight accessible to the human eye," said Dr. Dallinger, "can be more fascinating or more beautiful than this. A field of 50, or even 100, may be observed with ease, pursuing their untiring work. It is the more entrancing that it is apparently rhythmic, not like the measured march of a regiment, but the rhythmic movement of a peal of bells." The analysis of this movement and its results was most

difficult, because of the incessant change of position of the organisms. The mode of ordinary multiplication by fission also presented features of great interest, owing to the problem of the formation of the new and numerous flagella. For a long period it was found impossible to observe any sexual form of multiplication ; but unwearied diligence at last succeeded after three years' work. A kind of fusion of two individuals occurred, one of the individuals gradually contracting its flagella, losing its characteristic shape, and becoming ultimately absorbed in the other, which all the while, strange to say, continued swimming with full vigour. After complete union had taken place, the movement was much slower, and the body broke up rapidly into very minute portions in the course of from four to five hours, the motion of the whole organism being still active. Then, as it swam, it was seen to be dropping from it a stream of granules, the spores (and these being continuously watched) were seen to grow up into the likeness of the parent form, and shortly after to multiply by the old process of fission. Thus, should drying of the fluid take place, a multitudinous supply of the minutest germs, able to resist high temperatures, would become disseminated in the atmosphere, each capable of reproducing the whole series of changes. We have not space to follow Dr. Dallinger's exhaustive account of the variety of modes of fission he has observed in these minute organisms, but we have said enough to show that in his competent hands England will more than hold its own in researches on the minutest organisms—those most difficult to observe, most important in their operations, most essential to our health, or most pregnant with disease.

REPORT OF THE COMMITTEE APPOINTED TO WAIT ON THE VETERINARY COMMITTEE OF THE ROYAL AGRICULTURAL SOCIETY.

[We have been requested to publish the following report, read at the last Council Meeting of the Royal College of Veterinary Surgeons.]

YOUR Committee have to report that on the 4th November last they met the Veterinary Committee of the Royal Agricultural Society at the Society's rooms in Hanover Square. Present—Messrs. Greaves, Dray, Wragg, H. L. Simpson, and the Secretary.

In the unavoidable absence of the President of the College, Mr. Simpson was requested by him to explain the views of the Council in reference to Professor Brown's pamphlet, and the proposed appointment by the Royal Agricultural Society of one veterinary surgeon in each county who, amongst other duties, would supply to farmers the medicines and drugs recommended in the pamphlet. It was pointed out that Professor Brown advocated a system by which veterinary surgeons make visits and advise on the prevention of disease as well as attend the stock in illness ; and this, known as the contract system, is one which has the entire approval of your Committee, who know that it is largely in operation. But your Committee disagree with the conclusion at which Professor Brown arrives, namely, that the country districts are so badly supplied with veterinary surgeons that veterinary aid cannot be procured, and that it is vain to hope that farmers in general will avail themselves of the constant aid of the veterinary surgeon. Your Committee urged that the aim of the Royal Agricultural Society should be to encourage the contract system as the best in the interest of the public and the profession to put down quackery, and they further urged that the country districts were well supplied with veterinary surgeons able and willing within their districts to carry out this system, and that the appointment by the Society of one veterinary surgeon for the whole of each county for such a purpose would be very detrimental to local veterinary surgeons, without any

corresponding benefit to farmers. With regard to the publication of that part of Professor Brown's pamphlet entitled, "The Medicine Chest for the Farm," your Committee urged that the publication in a popular paper of a recommendation that such deadly poisons as Fleming's tincture of aconite and extract of belladonna should be kept at hand and used by farmers or their men according to directions there given, was injurious in every way, and that, inasmuch as the whole of the recommendations in the "Medicine Chest," were framed on the supposition that veterinary aid and veterinary medicines were not readily procurable, your Committee hoped the Royal Agricultural Society would neither press the publication of Professor Brown's pamphlet nor the appointment of a veterinary surgeon to each county to supply the medicines and drugs. Your Committee believe they have represented the views of all country practitioners who have considered this important subject, and they sincerely trust their representations will have the desired effect.

January 5th, 1885.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 129.)

I can hardly think that the decrease has continued in anything like the same proportion up to the *present* year, or our condition would indeed be alarming. It may be said, this last statement applies only to England, and that it is to *Ireland* we look for so much help in the matter of horses. Well, gentlemen, while admitting that to be true, I will show you the condition of Ireland as regards numbers of horses. In spite of a slight increase in the number bred in that country in 1872 as against 1871, the returns show that in 1859 there were 88,330 horses more in that country than in 1872, and in 1862 there were 62,149 more horses there than in 1872. I have had opportunities of conversing with gentlemen who are intimately acquainted with this subject, and in *their* opinion, as well as my own, this scarcity of horses in the United Kingdom is mainly referable to the exportation of our mares to foreign countries, whereby breeding has fallen off to an alarming extent. There are, doubtless, other causes; thus, the profits arising from the rearing of sheep and cattle, from being more certain, induce the farmer to give a preference to this occupation. If more evidence were required to convince you that the scarcity of horses *does* exist, not only in the hunter, hack, and superior harness-horse classes, but also in the cavalry, artillery, and half-bred horse generally, I may refer you to the answers to inquiries given by Mr. Phillips, who has possibly bought more horses for the English army than any man living, and whose opinion therefore cannot be lightly set aside. His replies may be shortly summarised as follows:—"I agree that there is a great scarcity of horses in this country. I attribute it to the loss of our mares, which go abroad. These mares are taken away because the foreigners consider our breed the best in the world. If I were called upon to provide 2,000 or 3,000 army horses within two or three months, I should be put to my wits' end to do it. I bought all the horses for the last Autumn Manœuvres, and if I had been restricted to English horses I should have broken down. My contract was for 2,000 horses; of these 1,500 were foreigners." Now, gentlemen, this is the evidence of a buyer who possibly has agents in every district throughout the country, and who could collect army horses more readily than any Englishman. It is here that I would again ask you to compare this statement with that of the Prussian cavalry officer, who said: "Regiments in Prussia could be completed on the third

day after mobilization." I do not propose to further refer to the scarcity of hunters (really hunters) and other high-class horses, as they come more immediately under our care as civil veterinary surgeons, and if I appeal to your knowledge of the difficulties there are in obtaining these animals simply, it will answer every purpose, as I have little doubt your experience of the scarcity of these classes agrees with my own. So far as the thoroughbred horse is concerned, there are more I believe in existence at the present day than ever, and, as I have before said, so long as the racecourse possesses the same attraction for the British public as it does in the present day, private enterprise may be left to care for them, both as regards their number and quality. I should, however, like to refer you to a summary of what Mr. Church, the manager of the General Omnibus Company, has said with regard to the class of horse with which he is more immediately concerned :— "We were driven to buy foreign horses simply because we could not get English. It was *not* because they were *cheaper*. In proof of which, the average price paid for our horses in 1862 was £25 2s. 7d., whereas *now* the average price is £33 19s. 10d. Of the 2,370 horses owned by the company in 1872, 90 per cent. were foreigners. The only remedy that I have ever heard of is that encouragement should be given to farmers to breed horses."

Doubtless some will refer me to the large increase in the number of horse repositories, and the increase in the number of horses which are sent there, and argue from these facts that there cannot be a scarcity of horses in the country. My answer to that is, the practice of disposing of horses by auction at repositories is becoming more and more popular, inasmuch as it relieves the seller of a large amount of responsibility which used to attach to him while selling horses to his friends or dealers at home. I am now, of course, referring to the private seller, but preference for this manner of disposing of horses is not confined to the private owner of a stud of hunters, or the executors of the gentleman deceased, as in and around London within the last few years it has become the practice for the large horse-dealers to employ a proprietor of a horse repository to call periodical sales, at which from twenty to fifty horses are disposed of in one day, so that the increase in the number of horses sold by auction is referable to a preference for this means of disposal, and not, in my opinion, to a large increase in the number of useful horses in this country.

We will now consider, briefly, whether it is a fact that horses are dearer than they were some few years ago, and I purposely pass at once to the consideration of this point, because it is necessary to trouble you again with figures, and I prefer to rely upon statistics on a point of this kind rather than to be guided by the mere opinions of gentlemen and others, because a scarcity of horses in their own immediate neighbourhood, and a consequent advance in price may induce them to say, without actual proof, that the state of affairs belonging to their own district must necessarily apply to the whole of the country. If I give the experience of those proprietors and others who respectively have to deal with the different classes of horses, we shall see whether the increase in price applies to one class more than another.

As to Carriage Horses.

Mr. Joshua East, of the well-known firm of East and Co. (who are probably the largest jobmasters in England) found that horses began to get dearer in 1862, and that the price increased year by year, until in 1872 he was paying 30 per cent. more for his young horses than in 1862 (ten years previously). Col. Maude, who purchases all the horses for the Queen's use, says that he did not find it necessary to pay more for the horses in 1872 than he had done for some time previous, but that instead of buying them

as heretofore at four years old, he was obliged to secure them at three years old, but at the original price, and keep them for a year before working them, so that the cost of the keep of each horse for a year may be considered to represent the advance in the price. I take it that if all the expenses are taken into consideration, £25 would represent the difference in value of the animal at four years as compared with his value at three years old.

As to Hunters, Hacks, etc.

Messrs. Tattersall show a table of comparative prices, dividing the animals sold by them into two classes, which may be described respectively as "superior" and "medium":—From the year 1864 there was a steady but marked advance in price at their establishment year by year, and the table I have referred to shows that, whereas in 1864 the average price of superior horses sold by them was £40 19s., in 1872 it had advanced to £90, or an increase of about 120 per cent. With regard to the "medium" class, in 1864 the average price was £21 11s. and in 1872 it was £36 10s., or an advance of about 70 per cent.

As to Army Horses.

Officers when being examined before the Committee in 1873, appeared to me, from the evidence they gave, to be desirous of taking a hopeful view of matters, as several of them stated that they had not experienced a scarcity, but their evidence went to show that if the old number of army horses was then maintained, they had to pay more for their remounts; thus Lieut.-Gen. Storks said: "I could find horses for an emergency *if I went with any quantity of money in my pocket*, but I could not find them at the *regulation price*, and I think it would take some time to do it. The increase in the price of the cavalry and artillery horse might have been ascertained by me up to the present day, and I regret that I have omitted to obtain this information. As, however, we have army veterinary surgeons with us today, they will, doubtless, set me right if I am in error in stating that, within twenty years, it has been necessary to increase the regulation price for horses for these services from £30 to £45. I specially mention the word 'regulation,' as I have been informed that this price does not actually represent the amount *paid* for remounts, as in many cavalry regiments a colonel will often himself pay the difference between the price *asked* for the horse and the regulation price, rather than lose a good remount for his regiment, which one can hardly hope to obtain for £45."

As to the Van and Trotting Horse.

I do not think I can do better than again refer you to the experience of the General Omnibus Company, who, in 1872, were paying an average of £32 17s. 8d. per horse, and *not English* horses, remember; whereas, in 1868, the average cost per horse was £23 5s. 10d., or an advance of £8 11s. 10d. in four years. This class of horse may be considered to belong partly to the artillery class, with which I have already dealt.

As to Cart Horses.

The experience of the South-Western Railway Company was as follows:—In 1868 the average cost per horse was £36 10s., and in 1872 £50, or an advance of £13 10s. per horse in four years.

The Great Northern Railway found their horses cost, upon an average, £35 in 1868, and £48 in 1872, showing an advance in price for the four years of £13 per horse.

As to Aged and Infirm Horses, or Cart Horses, of all Descriptions.

This class of animal appears to have advanced in price, in some cases, far out of proportion to that of young and serviceable horses. Thus Messrs. East found that in 1872 they were obtaining more money by 40 per cent. for their cart horses than they obtained in 1862, while the Great Northern Railway, who, in 1868, realised an average of £10 per cart horse, were in 1872 (four years later) enabled to sell the same description of animal in the open market for £23 11s., showing an advance of £13 11s. per horse in that period.

Having, I think, dealt with all classes of animals under the head of "Increase in Price," I will refer to depreciation in quality and increasing unsoundness under one head; and upon these points I propose to say but little, as I have the advantage of reading this paper before a body of gentlemen, whose opinions as to whether these two disadvantages exist or not is superior to that of any ordinary horseman, however great his experience may be, either as a breeder of horses, a master of hounds, or a horse-dealer.

If any are in doubt as to whether there is an increase in the number of unsound horses, that doubt may be set at rest if they will compare the copies of their certificates of the last few years with those of twenty years ago. It may be to my advantage, or possibly the reverse, that I am unable to do that myself; but those who have had a long and varied experience will, I am sure, agree with me that, where the certificate of twenty years ago was, as a rule, one containing only a few lines, stating that a horse had been examined, and that, in their opinion, it was sound, it is now necessary to make many qualifying remarks, or in many instances to condemn the animal as absolutely unsound. At any rate, my experience has shown me that it is the exception, rather than the rule, to be able to give a clean certificate of the horses I am sent to examine. The experience which enables you to pronounce an opinion upon the unsoundness of horses, compared with some few years back, qualifies you to speak upon the other point, namely, the depreciation in quality of horses, and as, doubtless, this is a part of the subject which will be well discussed, I will say no more about it now.

If the Government of this country decided to interest itself in this question of horse-breeding, it occurs to me that the system adopted in India (with some slight alteration) might very well be copied.

I think no stallions but those who have been certified to be free from hereditary disease should be purchased, and no mare should be allowed to have the services of these horses, unless her owner could also produce a certificate to the same effect.

Two classes of stallions would probably be provided for certain districts, as in India, and the owner of the mare, with the assistance of the person in charge of the stallion, could select the horse best suited to his mare.

No fee should be charged for the services of the stallions, except in those instances where the services were required for a thoroughbred mare. I can foresee that this would be necessary, or a horse whose produce was popular on the turf would be called into requisition to cover these thoroughbred mares, with a view to racing the produce. This would exclude from his services the class of mare that would produce stock beneficial to the country and with profit to the owner, and on that account breeding thoroughbreds from public stallions should not be encouraged.

From the fact that so many of our best mares have gone out of the country, I should not hope for great results, until the produce obtained in this way had attained the age of three years, when, doubtless their superiority over the class which farmers had, for years past, been breeding, would be evident, and after that I should not be at all surprised if farmers and others

bought good half-bred mares as they would a good cart mare, with the main object of obtaining a few foals from them. On all sides it is admitted that the travelling stallion of the present day is a failure, and the speedy thoroughbred is not so much sought after on account of his qualifications as a hunter-getting sire, but simply because he has won so many important races. I am, of course, aware that the horse which looks most competent to get hunters with good looks and plenty of bone and muscle, frequently gets stock the reverse of this. In such a case, I would say, castrate and sell him rather than allow him to beget stock which is of no use to the country; this would but be doing what I am told is done in Germany.

Prizes should be given at every agricultural show in the kingdom for the best brood mares and young stock up to three years old.

The stallions of a private individual should not be allowed to cover unless he possessed the certificate of a Government inspector, stating that he was free from hereditary disease, but if he possessed this certificate he should be encouraged in every possible way. Thus, if he covered, say, fifty mares annually, at a low price compared with his value, his owner should be subsidised in some way, thus imitating the plan adopted by the Austrian Government, who, as I have told you, give amounts of from £10 to £30 annually to all such stallions.

The reason given by the House of Lords Committee for not recommending that the Government should possess stallions of their own, was that the Government would, if such a plan were adopted, place itself in the invidious position of competing with private owners of stallions, and that compulsory examination would be regarded as an undue interference with the liberty of the subject.

I can hardly think that such considerations as these influence the Government of our time; otherwise it is difficult to conceive why the interests of the small country parcel-carriers, as well as the larger business of carrying companies, were not first considered before the parcels-post was allowed to be introduced. If, however, a committee of inquiry decided that the business of private owners of stallions would be interfered with, I can understand that nothing would be easier than dealing with such a state of things by the buying up of these animals, retaining those which were good enough, and castrating all the unsound brutes, which are ruining the country, as regards horses, by their existence as stallions.

There are, however, so many details requiring to be dealt with in attempting to lay out a scheme which would be likely to be attended with success, and which if I attempted to go into to-day would I fear weary you. They are present in my mind, but it would occupy in fact more time than it would be fair of me to expect you to grant me. I will, therefore, now conclude my remarks by renewing the hope expressed in the early part of my Paper, namely, that you have not thought this subject undeserving the consideration of a scientific association.

An animated discussion subsequently took place, in which Messrs. Lepper, Drewe, Walker (Oxford), Walker (1st Life Guards), Professor Pritchard, and others took part. Mr. Lepper proposed, and Mr. Drewe seconded a vote of thanks to Mr. Simpson, who was complimented on the subject he had chosen.

On the motion of Mr. Simpson, seconded by Mr. Simpson (Windsor,) it was unanimously agreed that a cordial vote of thanks be given to Mr. Lepper, for the way in which he had presided over the first year's meetings of the Association.

The next meeting will be held on the last Friday in February, at Reading.

H. KIDD, *Hon. Sec.*

BORDER COUNTIES VETERINARY MEDICAL SOCIETY.

THE third general meeting of this Society was held at the Bush Hotel, Carlisle, on October 3rd ; Mr. J. Carlisle, the President, in the chair.

Members present :—Roberts, Kendal ; Little, Abbey Town ; Walker, Kirkby Lonsdale ; Harrison, Warcop ; Thompson, Aspatria ; T. and J. G. Bell, Carlisle ; Chalmers, Longtown ; Robson, Penrith ; Crowdace, Haltwhistle ; Dawson, Carlisle ; Armstrong, student, Penrith ; and the Secretary.

Apologies were received from Soulsby, Whitehaven ; Young, Cockermouth ; Pears, Langholm ; A. W. Lawson, Keswick ; Howe, Keswick ; A. J. McIntosh, Dumfries ; Mr. Greaves, Manchester ; Professors McCall and Walley.

The minutes of the previous meeting having been read and approved, the following gentlemen were unanimously elected members :—John Bell, Clonmel, and Jacob Howe, Keswick. Mr. Harrison, Buxtergill, Warcop ; Mr. Aaron Sisson, Gosforth ; and Mr. J. S. Walker, Kirkby Lonsdale, were nominated for membership.

The office-bearers nominated for the ensuing year were the President, Treasurer, and Secretary for re-election ; Messrs. Roberts, Kendal ; J. Pears, Penrith ; T. Coates, Brampton ; and A. J. McIntosh, Dumfries, as Vice-Presidents.

Mr. DAWSON then brought forward the following motion, notice of which had been given at a previous meeting. He proceeded as follows :—

Mr. President and Gentlemen,—The motion that the lay Press be excluded from our meetings, and that all reports *thereof emanate from the Secretary direct*, is one which, at first sight, might appear to place too much duty upon the secretary ; but that can be easily obviated by procuring the services, when required, of a reporter. To me it appears necessary that our reports should be under the supervision of our own Secretary, not only for the public benefit, but for the members of this Society and the profession generally. The advantages of such procedure are at once quite apparent ; the reports would be uniform, and the business of our meeting carefully looked over before being committed indiscriminately to the services of the Press ; our writings and effusions, without any doubt, sometimes require modification before publicity is resorted to, not only through the medium of the newspapers, but also the veterinary periodicals, which is the orthodox channel through which our deliberations should be made public. The profession is best able to reduce the gist of our outspoken ideas to beneficial practice, consequently the general public through that source receive the greatest advantage. Publicity by all means is desirable, but a prudent care is necessary with it. Be it understood that in reference to this motion I have no feeling but one towards the gentlemen who have the honour to represent the lay Press, and that is, one of the most profound respect.

After some conversation the motion was adopted unanimously.

It was decided to call the attention of members to the following rule, and intimate that in future it will be enforced :—

Rule IV.—Any member not attending shall be subject to a fine of two shillings and sixpence, unless notice of such absence be given to the Secretary—such notice to be posted that day.

Mr. ROBERTS then read his essay on "Chloroform : Its Uses as an Anæsthetic in Veterinary Practice" (this paper appeared in the January issue of the VETERINARY JOURNAL), which was listened to with marked attention by the members present, and a very interesting and profitable discussion ensued, which partook mainly of a conversational character, all the members present taking part.

The resumed discussion on Mr. Thompson's paper read at the previous meeting was next proceeded with, and an animated discussion ensued.

Votes of thanks to the President and essayist brought the proceedings to a close, it being remarked that the meeting was the most interesting and profitable which the Society has held. The meeting lasted nearly six hours.

J. DONALD, *Secretary.*

LINCOLNSHIRE MEDICAL VETERINARY SOCIETY.

ANNUAL MEETING AT GRANTHAM.

THE second annual meeting of this Society was held at Grantham on Tuesday, January 6th. There was a very fair gathering of the members, and the proceedings proved exceedingly pleasant and successful. The great feature of the meeting was the attendance of Professor Walley, of Edinburgh, who read a most able paper in reference to special forms of Stomatitis in domestic animals, which gave rise to an interesting and useful discussion. Amongst those present we may mention Mr. J. Mackinder, of Peterborough (President of the Society); Professor Walley, of the Royal (Dick's) Veterinary College, Edinburgh; Captain Russell, Grantham; Messrs F. Spencer, Wragby (Secretary); Hardy, Sleaford; Runciman, Market Deeping; Greaves, Manchester; Brown, Navenby; Brooks, Fulbeck; Cooke, Lincoln; Leach, Boston; Kent, Boston; Gresswell, Peterborough; Whitworth, Grantham; B. Freer, Uppingham; C. Hartley, Lincoln; Gooch, Stamford; and Robinson, Peterborough.

The meeting was held at the Angel Hotel, Mr. MACKINDER occupying the chair by virtue of his official position.

The minutes of the previous meeting having been printed and circulated amongst the members, it was agreed, on the proposition of Captain RUSSELL, seconded by Mr. HARDY, that they be taken as read.

The CHAIRMAN said the next business was to consider the Treasurer's report, but a letter had been received from that gentleman, stating that he was unable to be present, as he had left the county; and his books not having reached the Secretary as yet, it would be necessary to postpone the financial part of the business until the next meeting.

The following gentlemen were then proposed for membership:—Mr. Cooke, Lincoln (proposed by Mr. HARDY, seconded by Mr. BROOKS); Mr. Leach, Boston (proposed by Mr. FRED SPENCER, seconded by Mr. BROOKS); Mr. Chas. Hartley, Lincoln (proposed by Captain RUSSELL, seconded by Mr. SPENCER); and Mr. B. Freer, Uppingham (proposed by Mr. GRESSWELL, seconded by Mr. SPENCER). These nominations were agreed to, and the gentlemen named declared duly elected.

The SECRETARY (Mr. Spencer) announced that letters of apology for inability to attend had been received from Principal Robertson, London; Dr. Fleming, London; Messrs. H. Howse, Lincoln; J. Hoole, Sleaford; T. E. Smith, Market Rasen; J. B. Gresswell, Louth; and A. H. Santy, Norwich.

Election of Officers.

On the proposition of Mr. RUNCIMAN, seconded by Mr. BROWN, Mr. Hardy of Sleaford, was unanimously elected President of the Society for the ensuing year.

For the office of Vice-President, Mr. Gresswell, of Peterborough, was proposed by Capt. RUSSELL, seconded by Mr. SPENCER, and elected *nem. con.*

On the motion of Mr. SPENCER, seconded by Mr. RUNCIMAN, it was also proposed to confer a similar honour upon Mr. Brown, of Navenby, but that gentleman asked permission of the meeting to withdraw from nomination;

and Captain Russell, of Grantham, was then unanimously appointed, on the proposition of Mr. GRESSWELL, seconded by Mr. BROOKS.

The office of Treasurer being vacant, Captain RUSSELL proposed the election of Mr. Spencer, of Wragby, remarking that he was sure they could not have a better man. He had filled the position of Secretary during the past year, and was intimately acquainted with the Society's affairs. This proposition was seconded by Mr. BROOKS, and cordially assented to.

A letter was read from the retiring Treasurer, tendering his resignation, and wishing the Society every success.

For the vacant secretaryship, Mr. SPENCER proposed the appointment of Mr. Hartley, of Lincoln, which Captain RUSSELL said he had great pleasure in seconding.

In acknowledging the compliment, Mr. Hartley said he did not fail to appreciate the honour which the members had conferred upon him; his knowledge of the working of associations such as this was only limited, but if by any means he could forward the interests of the Society he should be glad to do so. (Hear, hear.)

The Council of the Royal College of Veterinary Surgeons.

Mr. RUNCIMAN (Market Deeping) said he wished to call the attention of the members to the following resolution, of which Mr. Kidd had given notice at a meeting of the Royal Counties Veterinary Medical Association, held at Aylesbury on November 28th :—"That it is expedient for the welfare and encouragement of members of the Royal College of Veterinary Surgeons that they have free and unlimited choice in the selection of members of the profession to serve on the Council. The members of this Association therefore petition the President and members of Council to take the necessary steps to have clause 9 rescinded of the Supplementary Charter granted by Her Majesty the Queen on the 23rd day of August, 1876." The effect of this clause (Mr. Runciman explained) was to debar any man who was not a Fellow from admission to the Council. He was not going to say one word against the Fellows; he had no doubt they were very good fellows—(laughter)—but he held that there were men equally as good out of fellowship and in membership, and he could not see that the mere fact of a man becoming a Fellow endowed him with abilities superior to those he was in possession of before. He therefore thought this Society should adopt a similar line of action to that proposed by Mr. Kidd, and send a petition to the President and members of the Council on the subject. He regarded it as too selfish and exclusive that a few men should thus take upon themselves the whole control of veterinary matters in this country—the rank and file being altogether excluded. He would give notice of his intention to move at the next meeting a similar proposition to that he had now read, and he hoped the members of the Society would give him their support, for he simply took the matter up on the principle of fair play.

The CHAIRMAN asked what action they were to take in reference to the next election of Councilmen? He would like to see a member of that Society on the Council; and he would therefore propose that they take steps to combine with other societies in order to secure the return of Captain Russell as a member of the Council. He thought it was only right they should be represented; and seeing what was going on now in the veterinary profession, it was desirable that a country veterinary surgeon should represent the professional men of the provinces on the Council instead of London men.

Captain RUSSELL inquired if Mr. Greaves could name the gentlemen who were retiring from the Council this year. Under certain conditions

it might be desirable for them to take some steps in the matter; but if there were several good men coming out this year, it would be better to let matters remain as they were, and give their votes for those good men. He gathered from Mr. Runciman's remarks that he objected to the exclusive election of Fellows on the Council. As a Fellow himself, he could not help saying that it was well known, when that rule was drawn up, that after a certain period none but Fellows would be elected; and he could not help thinking that it showed a little jealousy when they heard an objection raised by members who had not chosen to qualify themselves for the position of Fellows, and so render themselves eligible for a seat on the Council. If these men would only come forward and qualify themselves for the position, they would be on a level with the other Fellows, so far as their eligibility for election was concerned.

Mr. RUNCIMAN replied that Captain Russell had misunderstood him. He was not in the least degree jealous of the Fellows; but he objected to the rule on the principle of fair play. The Fellows had no more right to take the reins into their own hands than any other men. He would not vote for Captain Russell unless he said that members had as good a right to act on the Council as the Fellows.

Captain RUSSELL said he agreed with the previous speaker to some extent; but he thought it was a pity this matter was not noticed when the rule was put forth. He foresaw that in the course of a few years the Fellows would be placed in an ambiguous position; but as no notice was taken at the time, it was a pity that they should throw dirt upon it now.

Mr. GRESSWELL thought that members did not know much about the Charter at the time.

Mr. GREAVES said in answer to the question who were the retiring members of the Council, he believed that their worthy guest of that day, Professor Walley, was one; Mr. Taylor, of Manchester, was another; and Mr. Blakeway, of Stourbridge, was also one. He had known Captain Russell for many years, and being a very popular man in this and neighbouring counties, he was sure they would all be very much pleased to see him on the Council. He had great pleasure in seconding their worthy President's proposition that Captain Russell should be the selected candidate for this county; and, with their permission, he would respectfully suggest that Professor Walley's name be added, and that they should run both these gentlemen together, and he had no doubt that other associations would heartily join them in this step. Professor Walley they could not do without. At the present moment he was at the head of the profession; and, next to Dr. Fleming, one of their best men. They must have him in; and he should be glad to see Captain Russell elected with him. With regard to the Fellows, every man who had a diploma was eligible, if he chose; he had to go through certain examinations, and they looked upon it that their most aspiring men would obtain this dignity. It was an honour which those who obtained it certainly deserved; and he thought they ought to be entitled to some privileges that other men who were too careless and too indifferent did not aspire to.

The CHAIRMAN had great pleasure in accepting Professor Walley's name in conjunction with that of Captain Russell; and remarked that if the latter was not elected a member of the Council they would no doubt have the pleasure of seeing him appointed a Vice-President.

Captain RUSSELL remarked that he would not refuse to serve, but he should be sorry to oppose better men.

The proposition was then put to the meeting, and carried unanimously.

Professor WALLEY thanked the meeting for this unexpected mark of good will. He believed the Midland Counties Association would be very happy

to work with them ; and he was quite sure that if they supported the nominees of the three Scottish associations, the Border Counties, and the North of England, these five associations would support them. With such a combination he thought they would have no difficulty in carrying their men.

The CHAIRMAN then requested Professor Walley to read his paper on "Special Forms of Stomatitis in the Domestic Animals, and the Abortive System of Treatment of Contagious Diseases having a Local Origin."

The PROFESSOR having first exhibited a case of instruments which he had brought with him—most of them knives of different kinds with universal handles—proceeded to read the following paper :—

SPECIAL FORMS OF STOMATITIS.

Mr. President and Gentlemen,—In choosing the subject announced for discussion to-day I had in view two things, viz., the selection of subjects likely to be of interest to the general practitioner, and the avoidance of anything like an exhaustive paper, for the preparation of which I have no time ; but I must express the hope that the few cursory remarks I shall address to you will be of some practical benefit. The special forms of Stomatitis to which I wish more particularly to draw your attention are, Contagious Pustular Stomatitis in the horse and so-called "Croup" in poultry ; incidentally, however, I shall touch on other forms of disease also.

The term "Contagious Pustular Stomatitis" has been used in a much wider sense than to signify the existence of a local (buccal) exanthem. It has been used synonymously with Equine Variola, and particularly so by Dr. Fleming and some Continental writers. Now, while I am not going to assert that its application in this manner is not warranted, I shall, in accordance with my experience, give good reasons for doubting the advisability of so applying it ; and I will ask one preliminary question, *i.e.*, Is it possible to have a form of Contagious Pustular Stomatitis independent of Variola ? or when arising, is it only one special phase of that disease ? I will confess at the outset my inability to imagine the possibility of a series of cases of any general infective eruptive disorder occurring in which the lesions are entirely localised in one particular site.

You are doubtless well aware that in Foot-and-Mouth Disease we frequently get pronounced localisation of the lesions in particular organs, *e.g.*, the mouth, the udder, or the feet ; but while this is so, it is a rare thing to find a series of cases in which such circumscribed localization is absolute ; there are, in other words, lesions more or less pronounced elsewhere than in the part particularly affected. Another preliminary remark I will ask your permission to make, and that is, that I was somewhat astonished to see in this month's *Veterinarian* a declaration by the editors to the effect that "they have never seen the disease, and that the so-called cases of Horse-Pox have proved on investigation to be Ecthema."

Such has not been my experience, as I have met with cases of typical Variola Equina both in England and Scotland, and the existence of such a malady is intimately associated with the history of V. Vaccina.

On the 31st March last I was asked to examine as to soundness a six-year-old cob which had been purchased from a veterinary surgeon a day or two previously. In the course of my examination I discovered the existence of a well-developed Pustular Stomatitis ; and on making inquiry of the purchaser and his groom, I learned that they were both entirely ignorant of the existence of the disease, though they acknowledged they had observed the animal "slavering" a little, and that he did not masticate his food as he should do. At the close of the examination I granted a certificate to the effect that the animal was unsound, and at the same time explained to the purchaser that the disease was of a highly-contagious nature, and that,

in all probability, the infection would spread to two other cobs which he told me had been standing in the same stable, and drinking out of the same bucket as the animal in question. The symptoms presented were :— The eruption in the mouth, slight salivation, a moderate degree of fever, the temperature never rising above 103° F., a slight laryngeal cough, and some tumefaction of the inter-maxillary lymphatic glands. The animal was lively, ate well, and, had it been required, could have performed an ordinary amount of work throughout the whole course of the malady.

On the 1st of April I was desired by the purchaser of the cob to supply him with such medicines as I thought necessary in the treatment of the case : this I did. On the 4th the animal was brought to the college for my inspection, when I found that the inter-maxillary glands were not only tumefied, but presented all the indications of approaching suppuration, while there was a profuse catarrhal discharge from both nostrils, these conditions being closely allied in character to those accompanying Strangles. In due course suppuration of the glands ensued, and the abscesses were lanced, exit being given to a large quantity of laudable pus, and coincidently with the maturation of the abscesses the mouth lesions subsided, and the animal rapidly became convalescent.

On the 7th of April I was asked to look at another cob which, it was stated, had been showing symptoms of the same disease for two or three days ; on examination I found the conditions already described in the first case in existence, and the course of the malady was identical. About the same time the remaining animal became affected, but remedial measures were promptly applied, and the disease was arrested, as it were, in the initial stage, the animal continuing to perform its usual work. The course of the affection in the case of these cobs, assuming that the disease was Variola, struck me as being rather remarkable, and I came to the conclusion that it was simply a form of Pustular Stomatitis of a contagious character, and not Variola at all. Indeed the eruption, in its course and character, though resembling that of Variola, differed from it in certain essential particulars, which I shall presently notice, and in none of the cases were there any systemic lesions of any kind developed.

On the 27th June I was requested by a horse-dealer to examine a number of his horses as, according to the statement of the messenger, they could not eat their food. In this instance I found on examination that there were four horses (Irish) out of some eight or nine showing symptoms of Pustular Stomatitis, but of a milder type and in an earlier stage than in the case of the two first cobs mentioned. These animals were all standing in the same stable, in a continuous line, some in boxes, others in stalls, and the same pail was in use for the whole of them. The disease had been introduced by a horse from the north of England. Treatment was at once adopted ; the boxes, stalls, mangers, and racks were thoroughly cleaned and disinfected, and strict injunctions given not to use any contaminated sponge or cloth to the healthy animals; but as the accommodation was limited the horses were allowed to remain in the stable. In not one of these cases was there any formation of abscesses, and in only one animal (the first attacked) did the eruption attain to any marked proportions, and they all recovered in about twelve days without the development of any cutaneous eruptions.

I have said that the eruption in these cases differed somewhat from that with which we are familiar in V. Equina. It was, like the last mentioned, localised mainly in the floor of the buccal cavity and in the inner aspect of the lips, particularly the upper, and of the cheeks. It presented itself in the form of a crop of nodules, about the size of a hempseed, hard in consistence, and, where the hue could be distinctly seen, of a greyish colour, the membrane being, however, somewhat inflamed. These nodules gradually

increased in size, and about the fourth day pustules were formed, the irruption of which was followed by ulcers, circular in shape, and about the size of the half of a split pea. At first discrete in every case, many of them became confluent, and thus formed large irregular patches of ulceration; in no instance, however, was there any marked tumefaction of the mucous membrane; but as in several of the animals natural pigmentation existed, distinct white marks were left behind; these gradually passed off. In those cases to which remedial measures were applied confluence of the ulcers never took place, and the healing process was materially hastened.

(To be continued.)

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE usual half-yearly meeting was held on the 3rd February, at the Norfolk Hotel, Norwich. G. A. Banham, Esq., F.R.C.V.S., Cambridge, President, in the chair; and amongst the members present there were Messrs. Santy and Slipper, Norwich; W. Shipley, Great Yarmouth; T. E. Auger, Wymondham; H. Newson, Beccles; R. T. Barcham, North Walsham; J. K. Gooch, Holt; and the Hon. Sec., J. D. Overed, Blofield.

Letters regretting their inability to attend the meeting were received from several gentlemen.

The minutes of the last meeting having been read and confirmed, the Treasurer submitted his accounts, which, having been duly audited by Messrs. Santy and Auger, were passed. It appeared that after meeting the current expenditure of the Association for the past year, and making a grant of twenty pounds in aid of the building fund of the R.C.V.S., a balance of £15 18*s*. 9d. remains in favour of the Association.

The election of officers was next proceeded with, as follows:—President, Mr. G. A. Banham, Cambridge; Vice-Presidents, Messrs. J. K. Gooch, Holt; H. Newson, Beccles; T. E. Auger, Wymondham; Hon. Sec. and Treasurer, Mr. R. T. Barcham, North Walsham.

Mr. J. K. GOOCH then read a very interesting and instructive paper on some of the "Diseases affecting the Stomach and Bowels in the Horse," which elicited an animated discussion from the members present, and a hearty vote of thanks was unanimously accorded to the essayist at its close.

Mr. J. D. OVERED also introduced to the notice of the members a disease, of parasitic origin, in the bowels of two-year-old colts, of which fifteen cases had recently occurred in his practice, proving rapidly fatal in some instances, whilst others, in a less advanced state, were more amenable to treatment, and were progressing towards recovery.

The disease was due to the presence in vast numbers of the *strongylus tetracanthus* in the bowels of colts at grass, causing entire loss of appetite, Acute Diarrhœa, extreme emaciation, and death from exhaustion in from two to six days after the colts were found unwell.

A hearty vote of thanks was accorded to the Chairman and other officers for their services; and regret was expressed that Mr. Overed (who had been Hon. Sec. to the Association ever since its establishment) should find it necessary to resign office.

The members afterwards took tea together, and spent a pleasant evening.

CENTRAL VETERINARY MEDICAL SOCIETY.

AT the meeting of this Society which was held on the 4th December, 1884, at the First Avenue Hotel, Holborn, Mr. J. Woodger read a very interesting paper, entitled, "Records of Cases of Tetanus in the Horse." This was considered worthy of a further consideration, and at the next meeting

of the Society, on the 15th January, 1885, Mr. Woodger, in response to a unanimous request, read his essay again, and its discussion was then resumed.

The PRESIDENT (Mr. F. W. Wragg) occupied the chair on each occasion, and the following Fellows were present :—Messrs. T. Moore, J. Rowe, W. Roots, J. Woodger, A. Broad, C. Sheather, Arthur Broad, H. J. Hancock, G. R. Dudgeon, and S. Villar. Professor Pritchard expressed, by letter, his regret at his inability to attend the meeting on the 4th December.

The following is Mr. Woodger's essay :—

TETANUS IN THE HORSE.

Record of Cases of Tetanus in the Horse.

Mr. President and Gentlemen,—Having been asked by your Secretary to introduce some subject at our Society's meeting, it occurred to me to bring you the recorded particulars of those cases of Tetanus which have come under my notice during the last few years. I may preface my remarks by saying that a certain firm, whose horses are under my care, having had the misfortune to have a large number of horses attacked by this disease, became very anxious about the matter ; and my interest being also aroused, I was induced to search my case-book for the past eight years for all the data I could collect bearing upon the point. In doing this, I was very much impressed by several facts which had hitherto roused no ideas in my mind. During the eight years from 1876 to 1883 inclusive, I attended ninety-six cases of Tetanus, of which fifty-five were Idiopathic, and forty-one Traumatic.

Of the Idiopathic cases, forty-five occurred in geldings, ten in mares. Of those of Traumatic origin, thirteen were in geldings, and twenty-eight in mares.

In the years 1876, 1877, 1878, 1881, 1882, 1883, the number of cases ranged from twelve to eighteen in each year, averaging nearly fourteen annually, whilst in 1879 there occurred but six cases, and in 1880, eight. Taking the whole number of cases in the eight years, it was found that ten occurred in January, six in February, seven in March, fifteen in April, ten in May, four in June, fifteen in July, seven in August, three in September, nine in October, six in November, and four in December. As to colour, thirty-three of the patients were bay, three roan, thirteen grey, eleven brown, fifteen black, nine chestnut; of twelve, no note of the colour was taken.

Thirty-three of the Idiopathic cases, and four of the Traumatic, were horses used more or less in dust-carting. Five of the Idiopathic and five of the Traumatic were omnibus horses ; and the remaining cases—seventeen Idiopathic and thirty-two Traumatic—were distributed among horses used for the saddle, carriage, and other kinds of work.

Of the fifty-five Idiopathic cases, seven geldings and one mare recovered, twenty-four geldings and five mares died or were destroyed, and fourteen geldings and four mares were not put under treatment, but at once condemned. Of the forty-one Traumatic cases, two geldings and four mares recovered, ten geldings and sixteen mares died or were destroyed, and one gelding and eight mares were not put under treatment.

Upon compiling these figures I was somewhat surprised. The Idiopathic cases outnumbered the Traumatic, though not greatly; but, taking the Idiopathic cases, I found the average to be nine geldings to two mares. It then occurred to me that in the stables from which the number of geldings came, it might be the case that fewer mares were kept, and in some two or three stables such was the fact ; but in other stables there were more mares than geldings ; and, upon the whole, I think there were as many mares as

geldings. If we take the omnibus horses, we find there were five Idiopathic cases, three geldings and two mares; and in these stables there are certainly more mares kept than geldings—as many as five to three, and yet there are more geldings than mares affected. Among the Traumatic cases, there were twenty-eight mares and only thirteen geldings, but in my practice there are considerably more mares than geldings—I believe even twice as many—though it would be difficult to prove this point.

Taking the months of the years, it will be observed that the smallest number of cases occurred in June, September, and December; the greatest number in April and July. In the cases put under treatment, the number of recoveries was about twenty per cent.

The most remarkable fact is that more than half of the Idiopathic cases were among horses more or less used for dust-yard work (that is, carting ashes from houses to brickfields), whereas in the Traumatic cases only ten per cent. were horses employed at this work. As nearly as I can ascertain, I only attend about 150 horses used for the dust-carting, so that the number affected would represent three per cent. per annum; whilst out of 1,800 omnibus horses I had only ten cases in the eight years—only about $\frac{1}{14}$ per cent. per annum. With regard to the other forty-nine cases, I cannot estimate the percentage, on account of the great difficulty in finding the number of horses represented, but I certainly think it cannot be less than $\frac{1}{5}$ per cent. per annum.

Williams tells us, in his "Veterinary Medicine," that Tetanus is seldom seen, if ever, in certain localities, whilst it is unusually frequent in others; possibly the district in which I practise is one of those favourable to its occurrence. I trust we shall hear the experience of the Fellows present as to the effect of various localities, and also as to the extent of the prevalence of Tetanus among horses used in different kinds of work.

When one reflects on the large number of geldings attacked with Idiopathic Tetanus, compared with the small number of the mares (nine to two), it would appear that it cannot be a matter of chance; and I cannot help thinking that the operation of castration must have some influence—must in some way be a predisposing cause of the disease. I regret to find that I did not, in my notes, record the age of each animal attacked, for it would be of interest to know how long after castration the majority of cases occurred. The disproportion between the number of cases occurring in two of the years out of the eight and the remainder, raised in my mind the question, Does temperature or rainfall have any influence on the prevalence of Tetanus? And to this I would certainly answer yes, but shall have to treat of this farther on.

With regard to colour, my figures do not show that any one coloured horse is more liable to the malady than another, nor do I see that the tint of skin or hair can have any influence in this direction, except that, perhaps, we might suppose, in proportion to their number, that we should find more grey horses among the list, in consequence of the melanotic tendency; yet I have never seen a melanotic horse with Tetanus.

I have known for some years that horses used for dust work were more frequently subject to this disease than other horses, but until I compiled these figures, I was not aware that the relative difference was so great in extent as it is.

Many reasons have been given to explain the disproportionate frequency of Tetanus in dust-yard stables, such as the probability of the horses taking foreign bodies into the stomach, and their liability to punctured wounds in the feet and legs. Now, the latter class of cases would be put under the head of Traumatic cases, and these I do not find so common as Idiopathic cases. With regard to the swallowing of foreign substances, I think that

many other horses take into the stomach a variety of things, such as coal, stones, nails, etc., and yet it is in dust-yards alone that we find the high percentage of Tetanus cases. If has occurred to me that this may very probably arise from the presence of deleterious gases given off from the dust heaps. When asked if they notice any disagreeable smell near the heaps, the men at work in the yards say they do not ; but my opinion is that this is due to the fact of their having become accustomed to it, for I have noticed that there certainly is at times a faint, unpleasant odour arising from the refuse and ashes. When these mounds are perfectly dry, they may be free from any dangerous properties, but upon getting wet, more particularly in warm weather, it is possible that poisonous gases emanate from them, and so affect the horses in their vicinity, that we may look upon them as exciting causes of this disease. July and April are the months in which I have found the greatest number of cases occur ; April is proverbially a wet month, and in July we generally get a large rainfall in addition to extreme heat. Before leaving the subject of the refuse dust, it may be as well to note the fact that amongst it will be found small quantities of decaying matter, both animal and vegetable, and the ashes cease (as I have said) to exert their disinfectant power when wet.

Some four or five years ago, a man in my neighbourhood asked me to visit his horse. I found it suffering from Tetanus, supervening upon "Broken Knees," and it was destroyed. Twelve months afterwards I was called in to examine the horse which had replaced the animal which was killed. The second patient had Idiopathic Tetanus, and in a coach-house adjoining the stable, and communicating with it by a door, I found upon each of my visits a ton or so of bones, the smell arising from which was most disagreeable. The man only kept one horse. When I put these facts and figures together, and saw the extraordinary number of geldings affected with Idiopathic Tetanus in comparison with the mares, and also the great prevalence of the malady among dust-yard horses, I thought it would be of interest to this Society if I laid the result before the Fellows, and hoped it would stimulate them to search their case-books, and give the result of their experience, that we thus might all acquire more knowledge of the causes in operation to produce this fearful disorder. I feel convinced that castration is a predisposing cause, and that the fact of so preponderating a number of the cases of Tetanus being found among dust-contractors' horses is, to a great extent, due to poisonous emanations from the decaying heaps of refuse always present in the yards. I also believe that the stench from the bone heaps was the cause of the disease in the last two cases referred to. No one can for a moment doubt that there are other causes of the disease, but my object has been to direct special attention to these two. In speaking of castration, I only meant to refer to those horses which have been operated upon for some length of time, and did not allude to Traumatic Tetanus as an immediate effect of the operation.

Mr. A. BROAD said he considered the allusion to the influence of noxious vapours the most valuable point in Mr. Woodyer's interesting essay, and worthy of serious consideration. At the same time he thought the great liability of dust-yard horses to Tetanus chiefly arose from the frequency with which they received injuries to their feet and legs, the dust-wharves being strewn with such substances as broken glass and china, nails, etc.; and it must be borne in mind that a small wound could easily be overlooked, and that which was a Traumatic case be styled Idiopathic; and Tetanus was as likely to follow a slight wound as a large one, his experience led him to think more so. He had known Tetanus to occur from a severe chill, and in some cases which had been termed Idiopathic he had found internal injury to a joint or other part.

Mr. WRAGG said that a few years ago he had some dust-contractors' horses under his care, and a few of them were attacked with Tetanus, as a consequence of picking up nails in their feet. He then caused more care to be taken when such an accident happened. He had the foot pared, and poulticed, and administered physic, and since giving his personal attention to these points he had not met with a case of Tetanus among the stud.

Mr. SHEATHER said he had lately seen cases of Tetanus in the district alluded to by the essayist; he thought these contractors' horses might have a great amount of backing and twisting to do in their work, and that the disorder followed spinal injury. He had met with cases of the disease in which he could but refer to an injury of this kind as the cause. In two instances Tetanus supervened a few days after the horse had had a severe fall, though in each case no injury was apparent on the animal's rising. In the case of another horse he referred to, a blister was applied to relieve intense pain in the pastern joint; this it did, but in two days Lock-jaw appeared.

Mr. MOORE said he had not had a large number of cases of Tetanus to treat, and none of those he had met with were among cart-horses. He had discontinued administering hypodermic injections in these cases, on account of Spasm being frequently induced; he preferred the method of slowly syringing the agent over the animal's tongue. He thought the use of the term Idiopathic had no more value than to signify that the cause of the disease in a particular case was unknown.

Mr. HANCOCK differed from the opinion of the essayist that geldings were more liable to Tetanus than mares; more geldings might appear in the case-book, but he thought that accounted for by the fact that more geldings than mares were used by most London firms. Neither did he consider that castration could in any way, after a lapse of years, bring about the production of Tetanus. In common with others of the Fellows, he expressed dislike to the use of the term Idiopathic, and believed that there always existed an injury, either external or internal.

Mr. ROOTS considered the essayist's remarks on the influence of different localities were well-founded. In the district of South London, in which he practised Tetanus was very uncommon.

Mr. WOODGER remarked that he had in his own practice found great difference in the distribution of the cases; in Notting Hill and Hammersmith Tetanus had been of frequent occurrence, while in Paddington and Fulham few cases occurred. He thought the prevalence of the disorder in dust-yards could not be due to the horses having any unusual strain put upon their backs; were they subject to this, he would expect to find other injuries from that cause especially abundant, and such was not the case, and it was not a fact that their loads were heavy. He considered it very advisable to retain the use of the terms Idiopathic and Traumatic, as the latter signified that the exciting cause of the disease was known. We regard to Mr. Hancock's remark on castration, he would state that there was certainly one effect of the operation which might remain, and be a source of irritation for an indefinite time—this was Scirrhus of the spermatic cord. The influence of noxious vapours was recognised as a cause of the disease in the human subject, as was also severe cold. In common with Mr. Wragg and other speakers, he had often found those cases recover which had the least medical treatment.

At the meeting on December 4th, Mr. SHEATHER showed the heart of a horse which was injured in a collison with a light pony-cart, the shaft of which penetrated between the third and fourth ribs. The left ventricle was pierced through both walls.

Mr. MOORE related the case of a cart-horse which, in turning round short, while harnessed to a mud-cart, fixed the handle of the scoop up its rectum,

breaking off about two feet of the wood. This was not discovered till the day after the injury, and was extracted with the greatest difficulty, it having passed through the rectal wall, and firmly embedded itself in the muscles of the haunch. The horse died on the day following the removal of the handle.

At the second meeting, Mr. BROAD brought to the meeting the pelvic bones of a horse severely fractured, in consequence of the animal falling while merely being led along a frosty road immediately after its purchase.

Mr. ROWE introduced a novel form of suture needle-holder made by Messrs. Krohne and Sesemann after a German model; but the opinion was unanimously expressed that no animal would stand quietly enough to admit of the employment of so delicate an instrument, firmly fixed as it must be in the hand.

ALFRED BROAD, *Hon. Secretary.*

YORKSHIRE VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner for 1885 were held at the Queen's Hotel, Leeds, on Friday, the 30th January, at 1.30 p.m., the President, Mr. James E. Scriven, in the chair. The following members were also present, viz.:—Messrs. J. S. Carter, Jos. Freeman, W. George Schofield, B. Smith, G. W. Carter, G. Whitehead, A. W. Mason, P. Deighton, H. Snarry, T. C. Toop, W. F. Greenhalgh, H. Cooper, G. E. Bowman, Percy Carter, Peter Walker, J. H. Ferguson, and W. Broughton. Messrs. W. A. Taylor, S. Locke, T. Briggs, and Mr. Deighton's friend were present as visitors.

Apologies for non-attendance were received from Professor Walley, Professor Williams, Messrs. E. C. Dray, T. Greaves, J. W. Anderton, J. Atcherley, F. Danby, J. Bale, D. R. Sowerby, G. T. Pickering, H. Pollard, J. H. Carter, J. M. Axe, M. E. Naylor, and a number of friends, members of other societies.

The minutes of the last meeting were read and confirmed.

The SECRETARY read letters from Messrs. D. R. Sowerby, Hull, and J. H. Carter, Burnley, tendering their resignations as members of the Society.

The SECRETARY introduced the subject of election of Members of Council in May next, and after some desultory discussion, Mr. SCHOFIELD proposed, and the HON. SECRETARY seconded, the resolution, "That Mr. Joseph Shepherd Carter, F.R.C.V.S., Bradford, be nominated as a candidate from this Society." Carried unanimously.

Mr. CARTER said, if elected, he would endeavour to discharge the duties to the best of his ability.

Mr. MASON proposed, and Mr. FERGUSON seconded, that the Secretary be empowered to take the necessary measures in order to secure Mr. Carter's return. Carried.

The PRESIDENT then delivered the inaugural address, etc., for which a unanimous vote of thanks was awarded him.

President's Inaugural Address.

Gentlemen,—In rising to address you, permit me, in the first place, to thank you for the high honour you have conferred upon me by electing me as your President for the current year. It is with feelings of trepidation that I venture to assume the dignified position unanimously appointed me. I feel sure there are many amongst you who would have filled the presidential chair with greater credit than myself, yet I assure you that it shall be my bounden duty, whilst occupying this position, to endeavour to further the interests and progress of this Society, so as to fully merit the approbation of the members.

I would ask in return that every member of this Society would give me his

best support by a constant attendance at our meetings, and would also invite the attendance of members of other societies, and thus bring about much mutual benefit by a more frequent interchange of views, ideas, and opinions, which would undoubtedly tend to advance our knowledge of the diseases of the various animals which our noble profession calls upon us to treat in our respective practices.

During the past few years, you are all aware, there has been made some immense strides of progression in veterinary science, and I am quite sure you will all agree with me in expressing the hope that such a favourable impulse to our professional knowledge may be kept up with unabated zeal, vigour, and perseverance, so as to compare favourably with the onward progress of our sister, the medical profession.

Great reforms have taken place also lately affecting alike the schools, the students, and the practitioner. Rapid as the strides have been in these respects, they are continuing, and will still continue, and it is therefore for every member of our profession to watch with zealous care that no false steps are taken. We read of agricultural and other societies acting promptly when their special interests are involved; and we find that by unlimited discussion and well-matured plans, they invariably attain their special purposes.

With respect to the colleges or schools, I understand, there is a great number of young gentlemen pursuing their studies with the intention of becoming, I trust, honourable members of our profession; and with the great facilities now afforded to students to give them scientific knowledge, a great impetus to the social status of the profession must necessarily follow.

I understand that the examinations of the students have for some time past been unusually strict, and in the opinion of some members of the profession, too severe; still I am aware that it is essential every student should thoroughly understand the practical duties of his profession before receiving the diploma.

It appears to me that one of the greatest difficulties under which our profession labours is not being able to provide suitable facilities at the schools for students obtaining a knowledge of the diseases of ruminants, which form such an important part of the curriculum of veterinary education, and which afterwards forms one of the principal items in the daily practice of the veterinary surgeon. I am certainly one of those who believe it strictly essential that a student should be engaged in active practice with a M.R.C.V.S. for at least twelve months prior to receiving his diploma. At the same time, I am much puzzled with the statement made by the professors, that the students who have served a pupilage are more unsuccessful at the examining board than the non-pupilage student who has not received the advantage of practical tuition with a M.R.C.V.S.

I was glad to find that at the last meeting of Council three practical gentlemen were added to the Board of Examiners, and I hope that their long practical experience will eventually redound to the benefit of the student, reflect credit upon themselves, and be advantageous to the nation at large.

It is a pleasing fact to know that for some months past this country has been almost free from Foot-and-mouth Disease, owing, no doubt, in some measure to the long-continued dry weather we enjoyed last year, which, in some unknown manner, tended to arrest the fructification of the germs of this troublesome disease; and it is to be hoped that the utmost vigilance will be exercised in Ireland in order to prevent the disease being imported into this country, as I am quite certain that Irish cattle are great propagators of the disease into Yorkshire and the northern counties of England.

A few cases of Contagious Pleuro-pneumonia keep cropping up, but by the vigilant exercise of the restrictive regulation, the disease is checked, and prevented from spreading to any serious extent.

It is very unfortunate that farmers, cow-keepers, and dairymen cannot be persuaded to isolate their new purchases of stock for at least a period of one month, thus in a great measure preventing outbreaks of contagious diseases in their cattle.

The occurrences of outbreaks of Swine Fever are not so frequent as formerly—no doubt owing to the strict sanitary precautions adopted both in the counties and in the towns.

No doubt most of you will have noticed that a very bad specimen of quackery, emanating from a very high authority, has appeared in veterinary and agricultural journals. I allude to the pamphlet published by Professor Brown, and entitled the "Domestic Veterinary Treatment of the Animals of the Farm," intended for the use of farmers and agriculturists, etc. I think this not a step in the right direction, and Professor Brown might be more beneficially employed, or he might devote his time to more advantage in not propagating quackery of this kind; and I am much surprised to see that he is assisted in his unprofessional scheme by members of the profession in almost every county in England, who are acting as his agents.

I regret to hear that our late talented President of the Royal College has been seriously ill, but I understand he is now progressing favourably, and I hope he will soon be able to prosecute the vigorous and untiring labours which have characterised his career hitherto.

I am also sorry to inform you that one of the oldest members of our Society, viz., Mr. Naylor, of Wakefield, has had the misfortune to be partially incapacitated from his duties, but am pleased to learn that he is slowly recovering.

We have also to lament the death of our old esteemed and well-tried friend, Mr. James Freeman, of Hull, who, as you all know, was ever active in his mind, and liberal in his pocket, in order to carry out any project connected with the well-being of the profession.

And now, gentlemen, it gives me great pleasure to inform you that this Association is in a very flourishing condition, numerically and financially. As Yorkshire being such a large county, the members are very wide apart, and only one third of the veterinary surgeons are members of this Association, it is with difficulty we can get a large number together.

I would beg all members of the profession to become members of the Mutual Defence Society, as none of us are perfect, and we do not know how soon we might be wrecked on that troubled sea where the only lifeboat is called the Mutual Defence.

There is another society which every veterinary surgeon ought to be a member of—that is, the National Benevolent Society; because none of us can see far enough through the dim vista of this life into the future so as to be able to say we may not require the aid of this most excellent Society.

And now, gentlemen, allow me to thank you for the kindness you have shown by listening so patiently to my brief remarks, few as they are. I hope they have been offensive to none, but appreciated by all; and, if not too late, I beg to wish each, individually, singly, and particularly, a happy and prosperous year, and may the grim hand of Death grasp no one connected with us.

The SECRETARY related a local case of Paralysis affecting the rectum and tail of a three-year-old filly; and Mr. SNARRY detailed a peculiar case of sloughing of the hoof.

Mr. GEORGE CARTER related a case of very acute Rheumatism in a harness horse. The animal was newly clipped, and after being driven five miles at a quick pace, was placed in an exposed shed for half an hour. When wanted, the horse was found to be very stiff behind, could scarcely move after going part of the return journey, and was compelled to be stabled at once.

The symptoms were : Pulse weak, and upwards of 100° ; respiration hurried, palpitation of the heart, violent pains in the hind limbs, and general nervous excitation. The horse succumbed in seven or eight hours from the beginning of the attack. The *post-mortem* examination revealed extensive Endocarditis, Congestion of the Lungs, and the joints contained a small portion of synoviæ, and that of a viscid character; there was no discolouration of the urine.

Mr. SCHOFIELD gave his experience of Rheumatic Disease, particularly affecting cattle ; and Mr. DEIGHTON had recently treated a case successfully by the exhibition of Potass. Bi.-carb.

The dinner took place in the evening, when, after the usual loyal and patriotic toasts had been right loyally responded to, a number of toasts appertaining to the profession were duly proposed and responded to, the evening being passed in an amiable and pleasant manner.

Mr. T. C. TOOP kindly volunteered to read a paper for discussion at the April meeting of the Society.

ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons held in London on the 13th and 14th of January, 1885, the following students from the Royal Veterinary College were admitted members of the profession :—

Mr. E. J. Catmull	Wakering, Essex.
„ A. C. Piesse	Brixton Road, S.W.
„ G. W. Roberts	London, N.
„ G. E. Fryer	Kirkby Fleetham, Yorks.
„ F. W. Leigh	Westbury-on-Trym.
„ G. W. M. Haydon	Cheriton Bishop, Exeter.
„ James Farmer	Kennington Green, S.E.
„ F. T. Harvey...	St. Columb, Cornwall.

The following students passed their "Second Examination" on 10th and 12th of January :—

R. E. Brundell.
A. E. Sangster.
J. M. Tebbott.
W. B. Blunsom.
A. T. Farr.
T. S. Newbury.
L. Barrett.
A. H. Oliver.
J. R. Green.
H. Gray.
A. P. Burgon.
F. Hallilay.
F. Stephens.

The following passed their "First Examination" on the 7th, 8th, and 9th January :—

H. Goodwin.
W. Western.
W. E. Matthews.
*H. F. Sugden.
*W. H. Flook.
J. P. Walter.
A. C. Elliot.
H. Lukes.
*R. W. Clarke.
†H. A. MacCormack.
†S. Savournin.
T. H. Hine.
C. Rose.
T. D. Snowdon.
†H. King.
A. Moore.
W. T. Edwards.
E. Tarleton.
*W. B. Nelder.
†W. G. Patrick.

* Marked thus passed with "Great Credit."
† Marked thus passed with "Very Great Credit."

At meetings of the Scottish Section of the Board of Examiners, held in Edinburgh and Glasgow on and between January 19th and 24th, the following gentlemen passed their "Final Examinations," and were admitted members of the profession :—

Dick Veterinary College, Edinburgh.

Mr. John Hackett...	Pointon, Folkingham, Lincolnshire.
„ Richard Millar	Hornby, Lancashire.
„ Alfred W. Barnes	London.

New Veterinary College, Edinburgh.

Mr. Sam. W. Martin	Chesterfield, Derbyshire.
„ Albert Gledhill	Halifax, Yorkshire.
„ Gerard H. Hulme	Knutsford, Cheshire.

Glasgow Veterinary College.

Mr. John Steel	Cumnock, Ayrshire.
„ James K. Calderwood ...	Paisley, Renfrewshire.
„ James Gowans Deans ...	Paisley, Renfrewshire.
„ George E. Gibson	Hull, Yorkshire.
„ Alexander Reid	Magheramore, Co. Antrim.
„ Gavin Herron	Stirling, Stirlingshire.

The following gentlemen passed their "Second Examination" :—

Dick Veterinary College, Edinburgh.

Mr. Frederick Kidd.
„ Thomas Barker.
Mr. Lawrence Power.

Glasgow Veterinary College.

Mr. D. Wooley.
„ W. Hill.
Mr. R. B. Scott.

The following gentlemen passed their "First Examination" :—

Dick Veterinary College, Edinburgh.

Mr. C. Campbell.
„ J. McAleer.
* „ James Matthews.
Mr. H. Broughton.
„ George Parr.

New Veterinary College, Edinburgh.

Mr. Thomas Inglis.
„ J. Hall.
„ W. J. Wood.
„ R. Eastwood.
* „ W. J. Tatam.
Mr. A. Williams.
„ E. Collins.
„ J. Brigham.
„ W. Scott.

Glasgow Veterinary College.

Mr. Gavin Miller.
„ T. J. Campbell.
„ S. G. Howard.
Mr. T. B. Gorecki.
„ T. B. Muter.

Edinburgh, *February 10th*, 1885. R. RUTHERFORD, M.R.C.V.S.,
Secretary, Scottish Section of the Board of Examiners.

Army Veterinary Department.

Gazette, February 3rd.

THE following gentlemen to be Veterinary Surgeons on probation: Edward Taylor, Alfred Joseph Haslam: dated February 4th.

Gazette, February 10th.

Veterinary Surgeon (First Class) F. Duck to have the local rank of Inspecting Veterinary Surgeon whilst employed as senior Veterinary Surgeon in South Africa, dated December 24th, 1884.

Gazette, February 17th.

Veterinary Surgeon on probation, C. E. Nuthall, to be Veterinary Surgeon.

The fall of Khartoum and the events in the Soudan, have necessitated the despatch of a large body of troops from this country and the following veterinary officers: Inspecting Veterinary Surgeon Walters (to have the local rank of Principal Veterinary Surgeon), Veterinary Surgeons Hinge, Baldock, Aitken, Hagger, Betser, Dundon, Taylor, and Sharp, making a total of eighteen veterinary surgeons now in that country.

The following officers have embarked for India for a tour of service in that country: J. W. Evans, C. E. Nuthall, J. P. Adams, M. C. Mitchell.

The disposition of the veterinary officers in South Africa is as follows: With Bechuanaland Field Force, F. Duck (acting Inspector), J. H. Cox, F. F. Crawford, J. C. Berne, C. Rutherford; in Natal, J. C. Woods, J. E. Elphick, J. Finlayson.

At the Viceregal Levee held at Dublin Castle on February 3rd, the following veterinary officers were presented to the Viceroy by Inspecting Veterinary Surgeon W. B. Walters: D. C. Pallin, W. A. Russell, G. Whitfield.

Obituary.

RICHARD MORGAN, M.R.C.V.S., died at Calcutta on October 3rd, aged thirty-four years. He graduated in 1873, and soon after went to India, joining a large horse repository in Calcutta, and ultimately becoming the representative of another similar establishment there. He was much esteemed by a large circle of friends.

An old member of the profession has passed away in the person of John Greaves, M.R.C.V.S., of Flixton, near Manchester, who graduated so long ago as 1829.

The death is reported of Augustus Bowles, M.R.C.V.S., of Abergavenny, who was fatally injured by being thrown out of his gig. He graduated in 1857.

Notes and News.

A STRANGE DISEASE AMONG SHEEP.—A curious disease affecting the feet and mouths of sheep in the Quirmindi district of New South Wales has been attributed by Professor R. Von Leudenfeld to the presence of *amobæ*, derived from a creek to which the sheep resorted for water.

ABORTION AMONG COWS IN ABERDEENSHIRE.—Very serious loss has been sustained by breeders of shorthorns in Aberdeenshire this season. In

several herds of well-known repute about forty cows have slipped their calves, and fears are entertained of a number more following. The frequency with which pure-bred herds have been devasted in this manner makes the heavy loss to be the more deplored. Last year scarcely a single calf was left in one Aberdeenshire herd, the most of the cows having all slipped. The cause was at first assigned to over-feeding, but this has proved a fallacy in at least two of the herds, where under-feeding rather than over-feeding was practised.

FLESH CONSUMPTION STATISTICS give the yearly consumption of meat *per capita* in the United States, as about 120 pounds. The Englishman consumes 105 pounds; the Frenchman 74 pounds, and the German 69 pounds.

VETERINARY LITERATURE.—Since the establishment of the *Recueil de Médecine Vétérinaire*, in 1829, until about ten years ago, that journal was more particularly the organ of the Alfort School. From some cause or other the authorities of the school saw fit to sever their connection with the *Recueil*, and started the *Archives Vétérinaires*, which has been continued up to the end of last year. A change has now taken place, the *Archives* has ceased to appear, and the *Recueil* has assumed its old position, the teachers of the school appearing on its staff.

THE BERLIN VETERINARY SCHOOL.—During the year 1882-3, the number of horses admitted to the hospital for treatment was 1,918, and for examination 703; while in the polyclinic or external practice 4,660 were treated and 163 examined. In the dog clinic, 4,903 were admitted for treatment and 1,951 to be poisoned. In the ambulatory or external clinic, for contagious diseases, 15 herds of cattle, 5 of sheep, and 6 of swine were visited; while for sporadic diseases 430 cattle, 3 sheep, 8 goats, and 20 pigs were inspected.

Correspondence.

TUBERCULOUS MILK.

DEAR SIR,—In your issue for January last I observe a rather peculiar production, from the pen of Mr. J. Harrison, under the above heading; and as that gentleman arrogates to himself the position of a judge in reference to my writings on Tubercle, you must allow me space for a short reply to his animadversions.

Mr. Harrison insinuates that I claim the honour of being (in my own estimation) an authority on Tubercle, and that I insist on the transmission of this dire malady from the bovine to the human subject by means of the milk from the former. Well, the latter fact is not only credited, but also well known and proved, all over the world; but as to considering myself an authority on the subject, I emphatically deny ever having entertained such an idea. I am not capable, neither have I the time nor will to enter upon such a series of observations as would render me an authority upon this most important question. I have, however, all along freely spoken out my mind, and in doing so have invariably stuck to what I have seen and experienced; and I confess that I quite enjoy a hit or two at any one, be they medical or veterinary, who may happen to differ with my own ideas. This is not only quite natural, but perfectly legal, in any literary circle.

I submit, in complete contradiction to Mr. Harrison's sweeping condemnation of my ideas, that every statement contained in my article on Dr. Imlach's report of his researches carries the proof of its truth in itself. Not so, however, when we come to consider Mr. Harrison's "few additional

ideas" bearing on the question, for he commences by telling us that he considers the "*nature*" of bacilli to be an "*excretory product*," which is certainly an idea sufficiently extraordinary and incomprehensible to be all his own. Further, it seems that this excretory product has some remarkable connection not only with Tubercle, but also with "every other infectious disease affecting cattle"!

These are the only original "additional ideas" brought forward by Mr. J. Harrison; the rest of his remarks go entirely to prove the position taken up by myself and a host of other writers—namely, that the chief agent in propagating Tubercle in man and the lower animals is *our milk supply*!

Faithfully yours,

Banff, 14*th February*, 1885. A. MACGILLIVRAY, V.S.

TUBERCULOSIS IN CATTLE.

SIR,—The remarks of Professor Walley on my communication "in reference" to Mr. McGillivray's strictures on Dr. Imlach, in regard to the normal temperature of the bovines in connection with Tuberculosis in cattle, are a little ambiguous, and having it very strongly impressed on my mind that the old adage is in the main true, that "fools and little children should be careful how they handle sharp-edged tools, or they may get cut," I shall touch Professor Walley very tenderly. I am very glad that the Professor agrees with me that there is "manifest" danger in using milk from tuberculous cows when udder lesions exist, and on the face of his letter there is evidence that he has not seen a less number than one of such cases. Leaving Dr. Imlach to take care of himself, Professor Walley's letter indicates two heads (exclusive of the instrument used), viz.: the normal temperature of our domestic animals, and the implied dispute as to whether many tuberculous or so-called tuberculous cows have udder lesions such as indicated in my last contribution to your Journal.

I shall, with your permission, discuss with the Professor these two heads separately and *seriatim*. If my paper does not get too long, I may add a little other matter for thought for the Professor. Before commencing, let me describe the instrument I am using at present. It is a veterinary clinical thermometer with a magnified index, not self-registering. I don't believe in complications (in any instrument) if the operator has his eyesight. The arrow mark is standing at 98·$\frac{2}{5}$, not 98·4 as stated in my communication (page 16). The human normal must have been running in my mind when I wrote, and I did not take the trouble to look at my own instrument; so much for carelessness in writing for the press; it gives the Professor one chalk, but nevertheless, if he will not think me too contradictious, I would like to hint that I rather dispute 98·4 as an average normal gauge, even in the human subject. However, this is matter I have nothing to do with, and shall proceed to consider the normal temperature of healthy domestic animals within my range of practice in Westmoreland, leaving your readers to form their own conclusions as to which of the three of us is nearest the mark.

Having in view my intention to reply to Professor Walley, and also substantiate my remarks against Mr. Macgillivray, which, at the time, were written from memory of observations in casual practice, I have to-day, February 6th, being a vacant day, made a series of observations on temperature amongst the domestic animals on my own farm, which I will give to the profession for what they are worth.

First, then, I have a flock of black-faced, heath-going, in-lamb ewes in an

allotment on the Pennine range of mountains ; the size of it is about thirty-five acres, and it is rectangular in shape. I brought the flock down from the top to the bottom at a running pace, and folded about a score quickly ; they were all well out of "puff," breathing quickly. I took six of them at random, and tied three feet in each one of them as I caught them, at an interval of five minutes between each sheep. The first one registered 101 ; second, 99·1 ; third, 100 ; fourth, 100 ; fifth, 98·4 ; sixth, 100·1—all rectal temperature There was nothing unusual in this experiment. In the first sheep the quick-silver ran in a few seconds up to 100 F. In the others it required two or three minutes and an insertion of the instrument over the arrow mark to reach the temperatures I found. They were all strong, healthy young sheep, with the exception of the fifth, which ought to have been drafted.

My next series of observations was with two heifer stirks, one bullock ditto, and one yearling bull full of condition. First registered 97·4 F. ; second, 96 ; third, 98 ; fourth, 98. Next was with eight cows and calving heifers ; first registered 97 F. ; second, 98 ; third, 96 ; fourth, 97 ; fifth, 98·1 ; sixth, 96 ; seventh, 97 ; and eighth, 97. Next was with three two-year-old heifers ; two registered 98 F., and one 96·1. Next was two two-year-old bullocks ; one registered 98 F., the other 96. The next was three winter calves fed on milk, oilcake, and hay ; one registered 97 F. ; and two 98. The next animal operated upon was a brown cob pony, very fat, seven-year-old ; he registered 96 F. I had a mare in the same stable, but she declined the operation, and I did not press it. I may remark that the whole of these animals are good, healthy stock, fed mostly on good hay, and in average store condition. I commenced with them at half-past one, p.m., two hours after they had had their mid-day meal ; and they had all, or nearly all, laid down, so that they were perfectly on the quiet. I have no doubt, if I had let them out of the byre and given them a sharp stir up with a dog, but what they would have registered one or two degrees higher. The time I took for these cattle and the pony was one hour and five minutes. I had two assistants—one to take the notes, and the other to hold their tails aside ; and by no kind of manipulation with the instrument could I persuade the mercury to travel any higher up in the tube than the degrees I have recorded. I next had a flock of sheep fetched into the yard, consisting of black-faced, Leicester, and cross-down, I took five of them after they had stood about one hour to get settled. The first registered 99·1 ; second, 97·2 ; third, 99·2 ; fourth, 100·1 ; fifth, 100. My next operation was on two dogs—one registered 99, the other 98·3 ; concluding with two "tom" cats—one 99·3, the other 98 ; the first one got out of temper before I got him, and that, I think, increased his temperature. I have only now to remark that the thermometer is not an instrument to be depended on as an aid to diagnosing disease amongst our domestic animals, so much depends on the way and manner it is used, as well as the considerations of the different temperaments : some animals get quite feverish on the approach of strangers, and I have found in practice that when once the normal temperature is increased by any temporary ailment, a sharp drive or gallop so as to increase the respiration will send the quicksilver up two or three degrees, whilst an hour's rest without any treatment will reduce the temperature to the amount it was increased ; I have demonstrated this fact to some of my clients. It is very useful in treating disease ; you get a gauge to start from, and if it is a high one, say two or three degrees above normal, depletives are indicated ; if normal or lower, stimulants or tonics are often useful. Professor Walley says he has known young, vigorous animals "give a register of 103 F." I have found a heavy milk cow twelve hours after calving register 104·2 F. and yet not show the slightest symptom of Apoplexy or Puerperal Fever, neither did she even take on either, but

gradually settled down without any treatment whatever, and my family doctor tells me he has noted the same thing frequently in the human subject. Having now said what I have to say on the normal temperature of our domestic animals, I proceed to consider what the Professor says in regard to his experience as to the "softening or calcareous processes in the udder," not according with mine, and he goes on to say that such processes in that organ "I have very seldom seen." Now, as I said at the outset of this letter, I wish to treat the Professor very tenderly—and I will here add with the greatest deference—but must certainly confess to my total ignorance of any knowledge, either from college teaching or actual practice, that the terms "softening or calcareous" were synonymous in regard to tubercle; neither if he had read my communication carefully, would he find that I even hinted that I had seen such a process; what I said (page 17) was that I had made *post-mortem* examinations of cows which have died from the disease, and found tuberculous nodules in every stage of development down to the total breaking up of the mass in their udders. It is very many years since I demonstrated this fact before one of the largest farmers on the Earl of Lonsdale's estate in Westmoreland, and two or three smaller farmers, and they were thoroughly astonished. Not only the udder, but the lungs and mesenteric glands of this particular cow, were full or studded with nodules or coalesced tuberculous depositions, and a longitudinal or transverse section of the udder showed spurts of creamy pultaceous masses from a great many centres; those in the lungs were in the same state, and the nodules attached to the mesenteric glands, when cut across, were all more or less broken up in their centres. I never saw any of those chalky or calcareous accretions in the udder of a cow, and if I did, so far as my knowledge goes, I should count them harmless to the natural secretion of that organ; they are, in my opinion, not a process of development, but a total arrestment of tuberculous deposition; they become encased in a fibrous capsule, and if the animal's health is generally improved by tonics and nourishing food, she will very often make herself fit for the butchers, and Professor Walley will see more of this kind of thing hanging up in the shambles than anywhere else. It is quite true that these calcareous aggregations of tuberculous deposit in the lungs of cattle, do very often set up a sub-inflammatory action in the lung tissue, resulting in the formation of abscesses, which break up the lungs as effectually as the fully-developed tubercle does; but then, I hold that the exuded product of an abscess is essentially different, both in its chemical and microscopic elements, to what that of pure tubercle is, and if this process took place in the udder of a milch cow, I should hardly consider it as dangerous for human consumption as if pure tuberculous matter became contaminated with the milk, though it might be quite as disagreeable. My paper is getting, I am afraid, too long, or I would like to have asked the Professor if there is any difference between Scrofula and Tuberculosis in cattle; if he replies at all to this contribution, I think the profession would be glad to hear his definition, and at the same time describe the physical appearances in beasts suffering from the former complaint. It is, in my opinion, the greatest scourge at present existing amongst the bovines in England, or at least in my practice.

JNO. HARRISON, M.R.C.V.S.

Westmoreland, *February 7th*, 1884.

THE PATHOLOGY OF BURSATTEE.

SIR,—However much Mr. Burke's views may differ from mine, he at least should not credit me with statements which I have never made. In no part of my communication did I attempt to *instruct* the profession how to harden diseased tissues for microscopical examination, nor did I state that sores should not be examined after hardening in chromic acid.

I do not intend to open any controversy on the subject, but simply wish to correct what appears to me to be a most astounding misstatement.

India, *December*, 1884. F. SMITH.

DISEASE IN FOWLS.

DEAR SIR,—Perhaps some of my brother practitioners will kindly give me a little information upon the following matter, as I must confess I have not satisfied myself.

A good number of fowls in this neighbourhood have lately died, and upon *post-mortem* examination, the lungs are found to be intensely inflamed and decreased in size ; the whole of the other viscera are perfectly healthy, and there is nothing, in fact, to cause death, except the before-mentioned inflammation of lungs.

The birds gradually waste in condition, mope, and die, showing no particular symptoms.

There is no change in their habits, food, etc.—I am, faithfully yours,

"SEARCHER."

THE BOARD OF EXAMINERS.

SIR,—When one reads now-a-days the startling header that "grave interests are involved and imperilled," a chord of anxious disquiet is ruthlessly struck, and the eye is wont to scan fitfully and fearfully the secret information to be disclosed ; and great must have been the relief to many a reader of the letter you have published from Mr. Greaves, on discovering that the warning bore no reference to dynamite or other impending destruction, but only to some strange phantom which has upreared to his imagination in connection with the Examining Board of the Royal College of Veterinary Surgeons. I have the honour to hold office on the Board of Examiners, and would therefore rather have remained silently neutral in the controversy which has been indulged in of late on the subject of the examinations ; but when an old and respected member of Council can allow himself to be so beguiled into belief of the *unreal*, and to pose as a medium for the unintentional misguidance of others, it is but right that an explanation should be given to remove false impressions.

As Mr. Greaves but follows in the wake of others equally misinformed, or otherwise, as may be, who have lent their aid to lead astray by disseminating observations not to be verified by fact, I may briefly refer to some of them, only that they may be placed in their true light.

I may say at once of the "*three respects*" in which the working of the

Board of Examiners is so *exceedingly objectionable* in the estimation of Mr. Greaves, that they are but "the baseless fabric of this vision."

Firstly, the expression "*So many absentees from the Examining Board*" is mere figure of speech, as, in point of fact, the absence of an examiner has been singularly rare, and whenever it has unavoidably occurred the place has always been filled to the satisfaction of the absentee and of the Board. During the long time I have officiated as an examiner, I think only on one occasion have I delegated my duty, and that on the last day of one of the Scotch examinations, with Sunday intervening, when illness in my home hastened my return. I plead, therefore, guilty, through this one unforeseen emergency, to having rendered the Board, according to Mr. Greaves only, "*irregular, temporised, and incompetent*," by allowing my duties for the nonce to be performed by such "*outsiders and extraneous members*" as Dr. Fleming and Mr. Rutherford. The practical examination in the morning was conducted for me by Dr. Fleming, who was otherwise officially unoccupied for the entire day, having no other duty in connection with the requirements of the Board until the oral examination in the evening. Of the gentleman who kindly filled my post at the oral examination in the evening, I may say he has had the opportunity of hearing the examinations by myself of scores of candidates, and as he began his task with my full confidence, so he completed it to the entire satisfaction of my colleague. It is to be regretted, in friendship for the writer, and in respect for our professional community, that the exceedingly objectionable observations in Mr. Greaves's letter have been permitted to appear in print.

Secondly, Mr. Greaves assumes that the examinations are prolonged as to number of days by reason of *fewness of examiners*. Now this is not so; the Council having fixed the number of candidates to be taken for one day's examination, that number has invariably been regularly, easily, and efficiently adhered to, except on occasions when, for economy to the college, or to suit the convenience of others, an addition has been made to the number, and the Board has always complied with the desire. An addition to the number of examiners would, therefore, in no way expedite the business of the meetings under the present regulation. Four days' work could, of course, be done in *two* by additional examiners constituting a second and distinct Board, and twice the number of candidates being taken in a day; but I question whether there would not be great disadvantage, if not objection, in such a course, and which would be doing away with the scheme of *oneness* of examination for the pupils of all the colleges, which has been considered so desirable, and which is now on its trial under the functions of the present Board.

In this, thirdly, Mr. Greaves is again fighting a windmill through accepting pure fiction for fact; and, sadder still, is again discourteous in his insinuation when he writes: "*The examiners who do put in an appearance* have nearly always to do double duty."

It was an unfortunate mistake, as others also consider, that remarks should have been made publicly at the opening address at one of the colleges in disparagement of the Board of Examiners, being as unmerited as unjust, and so calculated in its irritating and misleading influence to disturb the *entente cordiale* which has existed, and should continue to exist, between the students and the examiners. When the audience was invited to "look on this picture and on that"—how in the days of the former Board the rejections were but 5 to 15 per cent., and under the present Board were 50 per cent.—the further information was not forthcoming with respect to the altered circumstances under which the examinations are now ordered, and which would have afforded an all-sufficient answer. Let it, then, be told. Under the older system referred to it was customary to examine on an average six students in the hour, each passing before *one examiner* only, and for some twenty minutes of time, during which one horse was supposed

to be carefully examined, his several defects detected and explained, together with sufficient questioning on matters practical generally, and the Council and every one tacitly believing the test was all-sufficient to prove a candidate fully qualified. In the members of the former Board, as in those of the present, it is my pride and happiness to know in each one an old familiar friend, many contemporary with myself in professional career. I was invited to act as examiner during the latter part of the term of office of the old Board, and can testify there is not a pin to choose as to individual fitness for the duty. It was six of one and half-a-dozen of the other; but the former Board was fettered in its function, and the scope altogether inadequate. What had been the system on the early introduction of the "practical" is the system now; each student is examined for at least twenty minutes, but not limited thereto, separately by each of the two examiners—being *three* students in the hour instead of *six*. In the first half the student is free to examine uninterruptedly in his own way, under the observation of the examiner, a horse as to soundness and general defects, to point them out, and be questioned thereon. He then passes over to the second examiner, to be questioned on one, two, or three horses, as may be desirable, and on other practical details; and there again as much time or more is devoted as embraced the entire test under the old rule. So long as the examiners, with conscience void of offence, have known that they have done their duty with painstaking, honesty, and impartiality, I believe, individually or collectively, they have cared little for the tittle-tattle of inuendo, begotten of vexation and disappointment at the increased percentage of rejections at the more recent examinations.

It was but a nine days' wonder, and I believe all is forgiven and forgotten in the recognition and acknowledgment that the examiners have done a good service in the interest of all concerned.

J. Roalfe Cox.

London, *February 14th*, 1885.

Sir,—I regret to have again occasion to trouble you, by calling the attention of Mr. Greaves to his incorrect statement of facts.

Commentary or criticism upon the actions of public men we agree to regard as justifiable, but truth plain and unvarnished in matters of fact ought ever to be before the minds of all who write for the public information.

The statement in parenthesis in Mr. Greaves' letter in this month's Journal referring to myself is not correct. I both seconded Professor McCall's motion for an increase in the number of examiners, and voted in the minority when that motion was reconsidered at last meeting of Council.

I would again counsel Mr. Greaves that, when he has any charge to make against men, individually or collectively, to remember that statements made are expected to be strictly true, both in a general sense and in minute particulars.

Yours obediently,

W. Robertson.

THE PRACTICAL EDUCATION OF VETERINARY STUDENTS.

SIR,—Veterinary students ought to be deeply indebted to you for inaugurating the recent discussion on the practical training in the different colleges. Students are placed in a very false position when they expect that, by obtaining a sufficiency of practical knowledge to satisfy the Board of Examiners of the Royal College of Veterinary Surgeons, they can go on their ways rejoicing; it is when they go before the great board of examiners, the public, that they find how cruelly they have been deceived. The student who has not had, before going to college, the privilege (as some of us happily have had) of seeing the different phases of the veterinary profession under the watchful eye of some eminent practitioner, must put his trust in the training to be received at college. Such a one may form a very high opinion of himself when told by his examiners that they have "found him fully qualified to practise the art and science of veterinary surgery and medicine," but sooner or later it will dawn upon him that he is sadly wanting in that practical knowledge so necessary to the veterinary surgeon.

Numberless instances could be related of the lamentable ignorance of the most simple practical matters shown by students, who a few days later, obtained the diploma of the Royal College of Veterinary Surgeons. It might be called exaggeration to state that to my own knowledge the internal malleolus of the tibia was pointed out as the seat of Bone Spavin, and the point of the os calcis as the seat of Curb! the dose of calomel for the horse four drachms to an ounce, while the absurd guesses made as to horses' ages were astonishing.

Where must the blame for this state of affairs be placed—on the students, on the Examiners, or on the teaching schools? Not on the students, for the majority of them have made the best use possible of their college "practical" training; nor on the Examiners, for heretofore they could not in conscience reject men for the want of that knowledge for which no opportunity was afforded of acquiring.

It behoves, then, our governing body, the Council of the R.C.V.S., to speak out in no uncertain voice, and determine that no longer shall students suffer such injustice, nor the public be imposed on so flagrantly.

A veterinary surgeon requires to be something more than a mere automaton to diagnose and treat diseases; he must be acquainted with the different points and shapes of the various breeds and classes of horses, cattle and dogs, and be able to converse with his clients on the merits or demerits of their studs—of course I do not mean to convey that all this is to be acquired during the college career, but at least let it be demanded that the age of the horse as shown by his teeth may be lectured on, and that certificates of soundness or unsoundness be written *every day* by senior students, not, as recently, once during the session.

It may be remarked that it is very easy to criticise and find fault, but that it is the proposition of remedial measures that is required. The onus of introducing reformation rests in abler and more experienced hands than mine, and it is only as being a comparatively recent graduate of the Royal College of Veterinary Surgeons, and therefore in a position to give an opinion on the present practical education of veterinary students, that I write to say that I thoroughly concur with your editorial remarks on the subject.—Yours very faithfully,

B. A. CLANCY, M.R.C.V.S.,
Assistant Veterinary Surgeon to T. D. Lambert, F.R.C.V.S., Dublin.

VETERINARY EDUCATION.

SIR,—It is with *very great reluctance* I take up my pen to join in the "wordy war" going on at the present moment in this Journal, which was, I believe, established with the object of improving the profession; whether

such productions as many of those which have recently appeared in it will tend to do this must be left to a wiser head than mine to determine, but I may be allowed at least to express some doubt on the subject.

Occupying the position I now do relative to the body corporate, I would much rather have seen a discussion initiated upon some useful subject, and one in which I could have joined heartily, than upon that under consideration; for, however much we may "air our notions" in print, we shall still find that doctors will, like other human beings, differ, not only in the matter of doctoring, but on general subjects also. But while this is so, I cannot sit still under the grossly unjust and illiberal attacks which have been made upon myself in common with my Scotch contemporaries. I should not only be something less than human, I should not be a Briton could I do so.

The Journal of December—and, to some extent, of November also—was devoted to the offering of advice to the teaching schools, which, to use the very mildest term, savoured strongly of puerility; and could one have closed one's mental vision while reading this advice, one might be pardoned if he came to the conclusion that he was living in the seventeenth or eighteenth, instead of in the nineteenth century.

The writers of the letters in the current number of the Journal seem to have gone on a different tack, and now a volume of abuse is poured out upon our devoted heads by men (fain would I use the term gentlemen, but I cannot apply it to anonymous writers) who have not the courage to father their own creations.

To read these productions, one would think that the teachers were bound "in the very bonds of sin," and that the schools were "sinks of iniquity"—verily a Nazareth, "out of which no good can come." We are charged with being "*obstructionists*" of the blackest type; as "being ready to sacrifice the interests of the profession to our own private interests"; as "ready to open our doors to all and sundry, literate and illiterate"; as "desiring to *pitchfork* unworthy and incompetent men into the profession"; as "instigating opposition to all useful measures," etc., etc. Such charges I can only characterise as *vile slanders*, worthy only of the members of a communist club.

Let it be understood that I will not act as the sponsor of other men's utterances; I am responsible only for my own, and I will say, that if I had in the past been guilty of all these things which are charged against me, it seems to me a remarkable thing that such a "monster of iniquity" should have been elected to the post (unsought after) I now occupy; and if I have so betrayed the best interests of a profession, to the advancement of which I have devoted my whole life, for whose welfare I have been always very jealous, neither looking or hoping for any other reward than that of a good conscience, defending it against all extraneous attacks, and gaining infinitely less from it than can be and has been gained by many a skilled artisan, then, I say, let my professional brethren use the opportunity which will be shortly given to them of relegating me to the limbo of obscurity: I shall be quite content if it is their will. Had I in the past consulted my own personal and selfish interests, I should have voluntarily embraced that obscurity, and should have profited by it, but I have one consolation—viz., that the vast majority of my professional brethren, if I mistake not, do not misunderstand me, nor do they undervalue my efforts.

But there is another aspect of this whole question which I cannot overlook, and that is, the influence which must necessarily be exerted, directly or indirectly, upon my position in this institution if all that is said of me be true. Let me call to mind the old and trite saying, that "He who steals my purse steals trash, but he who robs me of my good name," etc., etc. Well, sir, my good name is my only possession, and I may be pardoned if I think it

necessary to defend it, even though in the light of recent events it may seem unnecessary that I should do so.

That I have done my duty to my pupils I have more than once been substantially reminded; that those to whom I am responsible for doing my duty to the institution I direct are satisfied with my work is tolerably evident, seeing that I have more than once received public and, on many occasions, private acknowledgment thereof. That I have done my duty towards those who have honoured me with their confidence by entrusting their sons, brothers, pupils, and wards to my care is also plain, seeing that I still, as largely as a man can ever hope to do, retain their confidence; as for the rest, let the future speak for itself, and although I have not been assisted by all the advantages possessed by some other kindred institutions—had no huge livery stable at my back—I can look forward with confidence to the future position of those whom it has been my privilege and my pleasure to educate.

Now, sir, I am not going to imitate the example set in your Journal of "throwing mud"; such an occupation usually leads to the bespattering of those who throw it as well as of those at whom it is aimed, and I must express my great regret if I am compelled in some measure to expose the skeleton which is hidden in our own cupboard: on the whole, however, I shall confine myself to facts, and to queries based on facts.

Dealing first with the recent movement initiated by the colleges to add to the number of examiners on the final section of the Board, let us see in what it had its origin. If you refer to the address I delivered to the Scottish Veterinary Medical Association, in February last, you will see that I honestly directed attention to what I considered were its defects. My main contention being that it was not a representative Board, and I further expressed my inability to understand how it was that the percentage of rejections was uniformly so large, and the percentage of honours so low. I spoke of this in more than one conversation with Dr. Fleming, and in doing so directed his attention to the fact that if I had the powers of three men I could do no more for the students than I was then doing, and that the results of the examination were extremely disheartening and discouraging. The outcome of those conversations was the suggestion that the Examining Board should be enlarged, and that, in equity, seeing that there were three teaching schools in Scotland and only one in England, two Scotch practitioners should be added to the Board, and, inasmuch as there was no Irish representative in it, one or more practitioners from Ireland should also be selected. By this means, it was hoped, a more representative examination would be obtained, and the onus of the rejections would be more widely distributed; in the end Professor McCall's motion was brought forward, with the result that it was first accepted by the Council (at the October meeting) with only three or four dissentients—two of them Examiners—and not only so, but the election was proceeded with, although, as it unfortunately turned out, it was not legal as, owing to a misapprehension on my part, notice of the intended election was not given in the usual manner by the Secretary. The resolution to add to the number of Examiners was, however, legal, as the profession will learn from the explanation given by myself to the Council at the last meeting. Notwithstanding the practical unanimity of the Council to enlarge the final section of the Board of Examiners, a most remarkable change had, in the interval between the two meetings, been wrought in the minds of many members of Council, with the result that the resolution arrived at on the occasion of the first meeting was entirely overthrown at the last. Now, sir, there are two remarks bearing on this subject in the letter of Dr. Fleming which I cannot allow to pass without comment. The first is to the effect that "the principals display less zeal for Scotland and Ireland in the Council-

room than they do in the class-rooms." Let us see how far this bears the impress of truth. In talking the matter over with Professors McCall and Williams, I pointed out to them that there was no representative of the Glasgow College on the Board, and it was consequently arranged that Mr. Campbell should be nominated, and with him Mr. Borthwick; this was done; the result being that the latter gentleman received a large measure of support, the former very little. As to the other gentlemen nominated, it was made known to us that there was a widespread desire to see Mr. Woods on the Board as an examiner in cattle, and also either Mr. Harpley or Mr. Cartledge (seeing that they had been Examiners previously) as an Examiner in horse pathology; to these gentlemen we could have no objection, especially in the case of Mr. Cartledge and Mr. Woods, who were old and well-known practitioners residing in northern counties.

The question of putting in an Irish representative was also discussed, but we were in this predicament, that we did not know who to nominate (we had taken steps to discover who would be most acceptable, but without success), and as I had written to Mr. Simcocks, telling him that the election would be proceeded with, I suggested that the matter should be left in his hands; unfortunately he was not present at the meeting.

The second remark of Dr. Fleming's is to the effect "that the council-room is the place where the principals should lay their complaints and suggestions for discussion." Have we not done this? and, as will be shown by the remarks made in introducing and supporting the motion, in as moderate and conciliatory a manner as it was possible for us to do it? We avoided all personalities, we made no charge against any person; had this been done I should, from the chair, not only have withdrawn my support, I should have peremptorily repudiated such conduct; and while I have the honour of occupying that chair I shall deem it my duty to suppress the introduction of such matter into the discussions of the Council.

Dr. Fleming has made other statements which I cannot allow to pass unnoticed, these are to the effect that "the cause of the heavy percentage of rejections is due to a want of practical knowledge on the part of the students," and "that no competent student is rejected." In answer to the first assertion, I repeat the remark made by Mr. Pemberthy, that *a very large percentage of the rejected men are what are usually designated practical students;* and more, *they are rejected in the practical part of the examination; not once, but twice or thrice.* In reference to the second assertion, I may be allowed to remark that however incompetent many of these men may be in the eyes of their Examiners, a large percentage of them are so competent in the estimation of their teachers and preceptors as to lead them to entrust them with the performance of very important duties, and to look upon them as quite qualified to practise the art and science of veterinary medicine and surgery, even though they have not been fortunate enough to obtain the diploma of the R.C.V.S. Where, then, does the fault lie? Teachers and practitioners in common are condemned by the Examiners. To what tribunal is the student to appeal? There are no assessors as in the Medical Boards, and no person to say whether the Examiners are right or wrong; plainly, somebody must be wrong. If the teachers err, the students will discover their blunders in after life; if the Examiners, the effect on the student's fate is irreparable.

Let it be observed also *that no Examiner on the final section of the Examining Board has, as yet, written a text-book on the subject upon which he examines; neither in the past has there been anything in the shape of a syllabus to form a guide as to what subjects are examined upon at the different tables.* Doubtless it would be a bad day for the profession if it were bound blindly to follow the dictates of one or two men who considered themselves authorities in particular subjects; but although they would degenerate into

mere cramming machines, teachers would have the advantage of knowing what was expected from their pupils if a text-book were prepared by each Examiner.

Dr. Fleming has referred to the fact that the principals of the schools are often found opposing each other in courts of law. I can only say, personally, that I have never appeared in opposition to a veterinary surgeon in a court of law without feeling that I was right; and I have frequently endeavoured to get cases in which I have been engaged settled out of court by arrangement or arbitration. And does the charge hold good only in the case of the principals? Let the records of the law-courts in England as well as Scotland answer; and not only the law-courts, but the records of show-yard disputes. I leave this in the hands of my professional brethren, against whom, personally, Examiners have been sometimes known to appear in the witness-box.

Dr. Fleming, again, charges me with being desirous, by the aid of a motion recently before the Council, "to turn adrift those students who have failed in their practical examination to find their education where and how they may;" "to pass them by instalments," or, as one of your correspondents elegantly expresses it, "to *pitchfork* them into the profession." This is a most unjust charge, and, I will add, ungenerous too; the origin of that motion was not in the present, it had its birth in the distant past, and let me recall to Dr. Fleming's mind the fact that the motion was originally adopted by a very large majority of the Members of Council, but it was not, unfortunately confirmed at the time; consequently, when the time came for its confirmation, it was rejected in the same remarkable fashion as the resolution to increase the Examining Board has been rejected since. Does Dr. Fleming mean to arrogate to himself the position of sole arbiter and dictator in such matters? Are other men who love their profession every whit as much as he not to be allowed an opinion? I shall, at any rate, so long as I live, claim the right to hold one equally with any other member of the profession. Why was the motion to disjoin the practical from the oral brought forward? Simply to do away with the anomaly of pitching a man backwards and forwards—like a shuttlecock between two battledores—between the two parts of the examination; and in the event of his passing the latter, and failing in the former, to give him a chance of going away, if he wished, to improve himself in the subjects thereof. This motion was not originated "to enable the schools to turn over capital quickly," as has been so meanly suggested by one of your anonymous correspondents; if this were so, we should be pleased to see these men come back to us, as by so doing we should be constantly adding to our incomes, and let me tell those who make such assertions, that to me the return of old students within the walls of this college is a painful sight, when, as frequently happens, I feel they should not have returned; further than that, as I have before stated, the adoption of the motion would have done away with the farce of Examiners going on with the examination of students (and receiving fees for so doing) whom they know are already rejected. The Highland Society's Examining Board did not do this; on the contrary, men were honestly told that they were rejected, and would not be allowed to present themselves for the oral.

But it may be urged, and has been urged, a man who has paid his fees has a right to demand the whole examination. Would any man in possession of his senses elect to go through the farce of sitting for an oral examination, knowing that he had been previously rejected in the practical? The argument is disproved by this fact that sometimes men who are aware that they have done badly in the practical, refuse to go up for the oral examination.

Sufficient, however, on this subject. Let us glance for a moment at another string upon which some of your correspondents, as well as the Editor, have been harping, viz., practical *versus* theoretical training. I defy

anybody, at the outset. to say that I have ever decried practical training ; I have always advocated it, but in a different manner, and at a different period in the student's career, than those who have written so strongly on the subject, and whose mental vision will only enable them to see one side of the question ; and I further defy any member of the profession to show that I have ever led any student to suppose that practical work is not necessary for a successful prosecution of his studies. My reasons for opposing the pupilage clause I have already given on more than one occasion, and my main reason is that, were it brought into force, it would effectually prevent many good men from entering the profession who otherwise would do well in it, and be an honour to it, and become leading lights in it. And, I would ask, where would many of those who now occupy, and have occupied, good positions have been if all the inabilities and disabilities some would have us heap upon students had been in force in their day? I have said before, and I repeat it here, that a student who has not been much engaged, or not at all, in the active practice of the profession prior to entering college, is more likely to settle down steadily to his studies, and to continue to prosecute them after he has obtained his diploma, than one who has been engaged in a prolonged pupilage. This is no theoretical statement ; it is a fact proven by the greater number of those of the former class, as compared with the latter, who attend university classes and obtain university degrees. And I further assert that those young men with whose training I have had to do, who have followed my advice and have mixed practice and theory together from the outset of their career, occupy better and more important positions to-day than do those who have adopted a different plan of educating themselves ; and, what is more, the majority of those who are in the employment of veterinary surgeons are thought as much of by their employers as are others who are looked upon as purely practical students. There are good and bad of all kinds, and there are practical and theoretical students of whom neither professors nor practitioners will ever make anything good.

One of your correspondents has said that "if a young man goes as a pupil with a veterinary surgeon for a year or two, he will find out whether or not he possesses the necessary qualifications for a veterinary surgeon, and if he finds that he does not will seek some other calling more suitable to his capabilities." Let me tell the author of that assertion that, for every practical student who thus finds out his mistake, and retires from the prosecution of his studies, there are ten theoretical students who do so ; the former goes on hoping against hope, the latter recognises his weakness and gives in ; the consequence being that in the great majority of cases the hopeless students are largely composed of old pupils and the sons and relatives of professional men. These statements are based on facts, of the verity of which I can show proof if it is required. I know that some theoretical students do not see practice outside the college, but they are few, and they are not always to blame ; as they rightly say, practitioners to whom they apply ask prohibitory premiums. There are, I am happy to say, many practitioners who form a marked exception to this ; and I here heartily thank those who have voluntarily taken my pupils, and afforded them a chance of improving themselves at a moderate premium, or, as is often the case, in return for their services.

It is too much the fashion to pounce down upon students for their shortcomings. We do not always acknowledge our own, and I venture to affirm that there are mistakes made by practitioners that would not be made by students. Certainly if any pupil of mine got into the witness-box, and stated that "the germs of Sheep Rot were disseminated by the atmosphere," I should feel very much inclined to kick him ; and while I do not wish to make invidious comparisons, I would ask if the article by Dr. Abrahams on

"Dislocation of the Shoulder Joint," in the December number of the JOURNAL, was inserted as a "grim satire" upon the acumen of the practitioner of veterinary surgery? Dr. Fleming has drawn attention to the fact that "fifty per cent. of the graduates who present themselves for the army examination fail in the practical." I am in a position to state that many of my old pupils who have been most successful in that examination, and who have given the greatest possible satisfaction to their superior officers, are young men who were educated in the manner I have so strongly advocated; and further, that many of those who most egregiously fail are young men who have had infinitely better chances of becoming acquainted with the practical details of their profession. Again, there are many veterinary surgeons who have followed my advice in the case of a son or a brother, in preference to giving him a prolonged practical training prior to his entering upon his scientific studies. Examinations are not always the true index of the abilities of students, and were fifty boards organised to examine the same set of men the verdict would be different in each case.

In drawing this lengthy epistle to a close, I must reiterate the statement I have already made, viz., that I regret exceedingly the tone which this discussion has assumed, and the necessity I have felt to join in it; but I should not have done my duty to myself and the institution I represent had I allowed so many one-sided and unjust statements to pass without notice; neither should I have felt that I had done my duty by my pupils, whose natural defender I take myself to be. For worthless pupils, I feel neither pity nor concern in their misfortunes; they only get what they seek; but in the case of those who earnestly strive to reach the goal, and to make themselves perfect in their profession, I acknowledge that I do most profoundly commiserate them in their misfortunes, and so would others had they seen them suffer, as I have done, often in the extremity of anguish and despair, from the sudden and unexpected ruin of their fondest hopes.

Perhaps—though I would fain do so—it is too much to hope that now the discontented ones have blown off their superfluous steam, matters will be allowed to settle down quietly, and that all will work together towards the realisation of the proud motto of our college, and towards making our professional journals what they were (I take it) instituted for—channels of instruction and a means of mutual improvement.

Edinburgh, *January 15th*, 1885. THOMAS WALLEY.

VETERINARY JURISPRUDENCE.

SIR,—In answer to "Justitia" (in January's Journal), a registered practitioner is *not* justified in calling himself a veterinary surgeon, and by taking or using that designation he renders himself liable to a penalty not exceeding twenty pounds.

The evidence of the so-called veterinary surgeon would not be admitted as professional evidence in any case. If "Justitia" would get the Act of Parliament, and read it for himself he would find out what penalties were laid down, but which, be it regretted, have never been put into force.

The Ed. V. J. ought to peruse the Act before so dogmatically laying down the law on this question. I refer him to clauses 16 and 17 of the Act for instruction, and trust he will be good enough to correct such gross errors in next publication. I am sorry the Council have not seen fit to prosecute those who have assumed a title which they have no right to use, and which is too often abused. "SEMPER PARATUS."

[We thank our correspondent for so courteously inviting us to read the Veterinary Surgeons Act. We had carefully done so when it was a Bill, and have had to study it frequently since it became law, and our reply to

"Justitia's" question was perfectly correct. Clause 16 prohibits any one adopting the title of Fellow or Member of the Royal College; and clause 17 prohibits any person whose name does not appear on the Register of Veterinary Surgeons from designating himself a Veterinary Surgeon, or a Practitioner of Veterinary Surgery. Existing Practitioners being on the Register, cannot be punished for calling themselves Veterinary Surgeons. This must be evident to every one who peruses the clause. The evidence of unqualified veterinary surgeons has often been accepted in a court of law, before the passing of the Act.]

"FELLOWSHIP"—"THE NATIONAL VETERINARY MEDICAL SOCIETY," ETC.

SIR,—Into the low region of personal remarks and misrepresentation I shall not follow your correspondent. In defence of my own statements allow me a few words.

The Fellowship degree is one subject. The investing of the Fellows with the sole management and honours of the profession is another. The first, if properly carried out, has the good wishes of every one. The latter, it is the duty and the privilege of every member of the Body Corporate to examine and criticise. I have only exercised that privilege.

Fellowship.—The fact stands out broad and plain still that in round numbers there are "100 Fellows and 1900 Members, R.C.V.S.," and that in 1886, Fellows only shall be eligible as Councilmen and Examiners. The "traversing" of a host of anonymous correspondents cannot disguise or undo that fact. And that this arbitrary decree deserves all the hard terms that can be applied to it, is as plain to me as before.

"Wherein consists the superiority of this 100 Fellows—that they should be sole Examiners and Councilmen?" They form but a small part of the profession, and are apparently of four classes.

I. Men in attainments of well-known high standing—the only men in my opinion who should be Fellows. Some of our best men, however, are not Fellows. The P.R.C.V.S., some of the lecturers of the schools, a few of the Examiners, and a large number of better-class private practitioners are outside the charmed circle, and can only enter it by examination. The shutting out next year of such men is surely an unnatural arrangement—their appearance before the Fellowship Examiners, "comedy" in reality.

II. The men who by careful preparation pass the examination creditably and well. Men in every way to be respected, only it is possible and probable that their scientific knowledge, having been suddenly and rapidly increased for the avowed object of passing, may, after that object is attained, be as suddenly and rapidly dissipated, and the men though Fellows be really no better than when members.

III. *Accidental Fellows.*—Sixty or seventy men place F.R.C.V.S. behind their names, simply because they were members of the profession fifteen years prior to the Charter of 1876, and paid the fellowship fee. And how the date of a diploma and a fee makes such men better than their neighbours, I fail to see. No great objection to their being First Fellows, but every reason surely against their being Examiners and on the Council, to the exclusion of other and as good men who entered at a later stage.

IV. The men who, rubbing up their College knowledge, present themselves with considerable trepidation, or with confident, plausible exterior, trusting that, as they are well-known and very fair practitioners, or "most promising young fellows, whose general and professional knowledge is most satisfactory," and have come early to the bridge, they may get easily over. "Incompetence" in the Examiner who retired? Say rather, that the excellence of some

of the "Fellowship" candidates was not up to this Examiner's standard, and sooner than pass or reject such men he resigned.

Against the Fellows personally, and individually as members of the profession, I have not one word to say—their general excellence I freely admit—but when as Fellows they stand out as men of a higher order, claiming Council and Examining Board as their exclusive right—what just claim, in all reason, have they on their side? Has this degree, with or without examination, really and truly made all of them superior to all others around them? Let the Fellowship Examiners take up the letter of your correspondent "F.R.C.V.S." in your last issue; let the members of the profession read his anonymous epistle, without name, place, or date—its coarse personalities, misrepresentations, levity, and general obtuseness; and ascertain for themselves whether this "F.R.C.V.S." is a being of a superior order—a higher kind of veterinary surgeon, a fit Councillor and Examiner, an ensample of manliness and gentlemanliness. "Wherein consists the superiority" of this "Fellow"? Why should good men stand aside for such as he? "May the profession be preserved from *such* 'Fellows.'"

Clause 9, Charter 1876, is short but significant. Has the profession become ripe for this "*radical*" change? Ten or twenty years hence, there *may* (?) be a race of Fellows, whose "superiority" will be "apparent" and to whom council-chamber and examining-room may be confided. In the year "1906 possibly, not certainly in 1886." In my humble opinion, however, a good, right-thinking, straightforward member will *at all times* make as good and a better Councilman and Examiner than a possibly more brilliant and accomplished, but it may be erratic, or, on the other hand, low "Fellow."

The National Veterinary Medical Society.—As a member of this Society—and one who finds that to London and Manchester must be but on rare occasions—I do not believe that the Society is not wanted in Scotland. There are many men here, not members, who I believe would welcome the Society warmly, and do their best to make its visit pleasant and agreeable. While not approving of the action of Scottish practitioners as a class in standing aloof from the Society, and knowing the difficulty there is in getting many to attend even local meetings; these gentlemen have, I admit, a right to their opinions, they know their own feelings and circumstances. I trust that better counsel than that of your correspondent may prevail, that the Society after having two or three successful meetings in England may have one soon in Scotland, and that by diffusing good feeling and fresh ideas may find "new and warm friends and do national good."

This "F.R.C.V.S." tells us at the end of his letter "to send Scotchmen" to Council. Will he kindly tell us how? We tried in 1881. Our "luminary," the Principal of a school, succeeded; our "good private practitioner" failed. We tried again in 1883, with two as "good men" as we could find—Scotchmen, who had done long and good service in their profession and were well worthy of a seat in Council; these men were left out in the cold; five London men and one Lancashire man walked into the Council. We tried two "luminaries" last year, Principals of Scotch Colleges, and succeeded. This year we have the P.R.C.V.S. and a good Scotch practitioner along with the representative of the North of England Society. The "luminary" will probably be elected; the fate of the others is doubtful. Even if the three succeed, two of them, not being Fellows, will I presume have to walk quietly out of the Council next year. The "comedy" is on the other side. The words of my letter are true:—"A good man North can scarcely get a seat in the Council, a man no better in London is almost sure of election; a man from Scotland must be a luminary (a head, a shining light)—a state of incandescence (a fairly good practitioner) suffices from the South." I see no "comedy" in a Council constituted on the Parliamentary system—a Council fairly

representative of the practitioners of the three kingdoms; but I have long seen the "comedy" and the bad effects of twenty or thirty Southern men calling themselves the chosen representatives of the veterinary surgeons of England, Scotland, and Ireland, and the "comedy" of a dozen Southern men coming over the border as sole Examiners of the pupils of Scotch colleges and the sons of Scotch practitioners.

This "F.R.C.V.S." mentions the Highland Society, too. The men at the head of the profession at the present moment are almost to a man graduates of the Highland Society. The eight hundred and eighty "Existing Practitioners" and quacks now on the Register are almost to a man on the other side of the border. I make this statement in no "acrid" spirit. The Registers attest its truth. If the Highland Society by sending out men fitted for the requirements of the country, and if the Scotch practitioners have so conducted themselves that quackery in Scotland is reduced to a minimum, their example is worthy of imitation.

The question has yet to be solved, how far the well-educated, good-looking, gentlemanly young fellows now seen in Scotch colleges, will equal or excel their plainer, rougher, homelier, but very earnest predecessors, who were so proud of their Highland Society certificate—the men of 1840, '50, '60, and '70. When a Shorthorn or polled Angus breeder's heifer is calving, the man of worms and monstrosities may not be his best friend. When a piece of turnip or potato has to be removed from an ox's gullet, the lily-handed pathologist and microscopist may be somewhat at sea. In a stable with Influenza, Pneumonia, and Pleurisy; in a dairy with Pleuro-pneumonia; in a district with Foot-and-mouth Disease; in an examination for soundness, beside an everted uterus, a Colic case, Quittor, a pricked or cankered foot, the man of so-called education, science, and gentlemanly demeanour may after all *not be the best* man; the shrewd, plain, common-sense Highland Society man may be *the better veterinary surgeon* of the two.

When a good Highland Society man dies out of his district, and his place is taken by two younger men adding M.R.C.V.S. to their names, are the clients better pleased, the public better served? Let this "Fellow" without a name inquire.

Far be it from me to undervalue the advantages of superior education, other things being equal; but it is possible that matriculation examinations —however simple—increased fees, a lengthened curriculum, and stringent examinations may have driven from the colleges many sons of blacksmiths, farmers, horsemen, and even of veterinary surgeons of limited means, and placed in their stead young men of better position and higher education—sons of tradesmen, merchants, gentlemen even, and clerks in variety. Which is the better raw material for the future veterinary surgeon? Take the good old-fashioned student of Professor Dick's best days. He needs no set term of pupilage. Shower on him the now greatly-increased advantages of the schools, and at "the Final," instead of five out of thirty men, reject ten or twelve. The result will be, so far as I am able to judge, eighteen or twenty veterinary surgeons whom the country will welcome, of whom our colleges and our examiners need not be ashamed; but with young gentlemen who know little of horses and cattle, who touch their tails and feet but seldom, to whom cows, calves, sheep, and pigs are wild and strange animals, three years of pupilage, three years at college, "Fellows" as examiners, no better, if so good, veterinary surgeons at the end.

Apologising for the length of this letter,

I am, sir, yours very truly,

Slateford, 15*th January*, 1885. C. CUNNINGHAM.

FARMERS AND VETERINARY SURGEONS.

SIR,—May I offer "A Country Vet." a crumb of comfort by suggesting that he has over-estimated his clients' credulity in supposing that they would prefer to treat their animals on Professor Brown's printed recommendations rather than avail themselves of the services of a competent practitioner at hand? If the publication of works of this kind could deprive us of our pittance, we should have been relegated to the workhouse long ago, since there is no Institution for decayed "vets."

If we fear such competition as pamphlets and nostrums, are we not wanting somewhat in self-respect? It has been my experience that those owners of animals who attempt in a leisure hour to acquire the knowledge we have obtained by years of study and devotion only open their eyes to the vastness of the subject, and make up their minds to employ the best men. Where the professional attendant has the tact to allow such clients to air their superficial attainments and, to an extent, take them into his confidence and lead them out of their depth, they eventually become the best and cheapest of advertising media.

Again, I would suggest that not one client in a hundred has ever heard of Professor Brown, nor do the public generally speak of professors with the bated breath of students. We are all professors in our clients' eyes, and too much so very often.

If high scientific attainments like those of the professor in question could bring with them implicit confidence in all an individual writes and says, and ability on the part of farmers to diagnose cases, there would be no longer a living for men of average attainments; but such is not the case. The inherent conservatism of the country makes men place their faith in those they know; and where they know a man as a successful practitioner they care nothing for diplomas or professors; and if we could lay aside our professional cant and personal jealousy, we should have to admit that farmers are best served by their own rough and ready selection.

There is another safeguard against the rampant quackery "A Country Vet." complains of, and that is the sense of dependence that owners feel on the assistance and goodwill of their "vet." They know that, however sanguine, the dark night will come when Mr. Dash's services will be required to calve a cow or perform some other onerous and not too remunerative operation, and a spirit of fairness as well as self-protection induces the stockowner to give his "vet." some of the rough and some of the smooth (I am now speaking of the country proper, not the Londoner's country, which is everywhere outside the metropolitan district); and those who live in a thinly-populated district know whenever a bullock dies or an accident occurs, and the man who uses Day's drinks in the sunshine may be referred to them on a dark night when Mr. Dash would rather remain in bed.

East Grinstead, Sussex. HAROLD LEENEY, M.R.C.V.S.

VETERINARY INSPECTORSHIPS.

SIR,—As the lamentations of disappointed members of the Royal College of Veterinary Surgeons find expression in your journal from time to time, I venture to make my complaint, as I believe it is unique of its kind. Wherever I have lived, the veterinary inspector has been an unqualified practitioner; but in the district of East Grinstead (a very large one) the person holding the appointment keeps a tobacco and druggist's shop, and does not practise

outside this shop except when called upon to inspect for the authorities or give evidence in police or cruelty cases.

As the person before referred to neglected to register under the Veterinary Surgeons Act, I should like to know, sir, whether a defendant cast in costs at the police-court, could not refuse to pay either the half-guinea for examination or the subsequent half-guinea for professional evidence before the magistrates.

Country practitioners like myself may recognise the future good to be anticipated by the Act, but it certainly requires a robust faith to believe in the advantages it confers on the present members.

East Grinstead, Feb. 9th, 1885. HAROLD LEENEY, M.R.C.V.S.

[Non-registered practitioners cannot legally enforce their claim to a fee for professional services, and any one may refuse to pay them for such services. Such men should not be employed as inspectors. ED. *V.J.*]

TO CORRESPONDENTS.

COMMUNICATIONS from Messrs. R. H. Dyer, J. S. Hurndall, W. P. Adams, Leather and Sons, and others, with the report of the Midlands Association, will appear in our next. Mr. Greaves's letter came too late for the present issue.

It is requested that secretaries of societies will condense their reports as much as possible in order to ensure early publication.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from R. McConnell, Castle Douglas; "Semper Paratus"; J. Donald, Wigton; C. Hartley, Lincoln; R. Poyser, A.V.D., India; B. A. Clancy, Dublin; A. J. Hill, London; R. Pringle, A.V.D., Bengal; Professor Walley, Edinburgh: T. Greaves, Manchester; A. Spreull, Dundee; H. Leeney, East Grinstead; Professor W. F. Garside, Cirencester; J. Roalfe Cox, London; Professor Robertson, London; "Searcher"; Messrs. Gresswell, Louth; J. D. Overed, Blofield; A. Broad, London; J. Harrison, Westmoreland; R. Rutherford, Edinburgh; T. Runciman, Market Deeping; E. Beddard, Wolverhampton; F. Smith, A.V.D., Bangalore; W. Broughton, Leeds; H. L. Simpson, Windsor; W. P. Adams, Ossoor; A. Macgillivray, Banff; R. H Dyer, Limerick; J. S. Hurndall, Liverpool; A. Barron, Liverpool; Messrs. Leather, Liverpool.

BOOKS AND PAMPHLETS: Encyklopadie der Gesammten Thierheilkunde und Thierzucht; Contagious Diseases of Animals—United States Department of Agriculture; State Measures for the Direct Prevention of Poverty, War, and Pestilence.

JOURNALS, ETC.: *Journal of Comparative Medicine and Surgery; American Veterinary Review; Wochenschrift für Thierheilkunde und Viehzucht; Scottish Agricultural Gazette; Maryland Farmer; Quarterly Journal of Veterinary Science in India; British and Colonial Druggist; Der Thierarzt; Lancet; British Medical Journal; Live Stock Journal; Mark Lane Express; Animal World; Annals de Médecine Vétérinaire; Revue Vétérinaire; Repertorium für Thierheilkunde; Archives Vétérinaire; Archiv für Wissenschaftliche; Œsterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; Der Hufschmied; Chicago Live Stock Journal; Clinica Veterinaria; Edinburgh Medical Journal; Tidskrift für Veterinar-Medicin; Canadian Dairyman and Farmer; Animalia; Kansas Live Stock Indicator.*

NEWSPAPERS: *Debater; Irish Times; Dundee Advertiser.*

THE VETERINARY JOURNAL
AND
Annals of Comparative Pathology.

APRIL, 1885.

LATHYRUS-POISONING IN HORSES.

BY JOSEPH LEATHER AND SONS, M.R.C.V.S., LIVERPOOL.

In the beginning of March of last year (1884), we were asked to see some horses belonging to a team-owner in this city, which were said to be suffering from some peculiar, and apparently epidemic, disease.

The horses said to be affected appeared, when at rest, to be in perfect health, respiration and temperature normal, but the pulse frequent and weak, on an average about sixty per minute. On moving the horses over in the stall, they seemed to stagger somewhat, and to have imperfect control over lateral movement of the hind legs; moving backwards and forwards, however, in most cases apparently normally, although the carters stated that some of the horses had lately become bad backers. On taking a horse out of the stall and exercising it, particularly if a cold wind was blowing, the animal was at once seized with Dyspnœa and roaring. The roaring was not of the ordinary single or expiratory character, but was a well-marked double-roaring from inspiratory and expiratory Dyspnœa. If tracheotomy was now performed there was immediate relief to the symptoms, as was also sometimes the case on merely allowing the animal to rest, and at the same time elevating the nose.

In many cases the Dyspnœa produced sudden death, apparently from Asphyxia ; and in most bad cases where the horse recovered, with or without tracheotomy, large quantities of blood

were coughed up from the trachea. In a few instances the roaring could be brought on by moving the horse somewhat roughly in the stall, and it was noted that even when the roaring was pretty severe, the horse would eat ravenously.

Since, in the course of a few days, a good number—perhaps a dozen—animals were seized in the manner above described, and as nothing of the kind was known in any other stock in town, it was evident that there must be something peculiar to this stable, which we set ourselves to determine.

The stables in which the horses were kept were clean and well drained and ventilated; the animals themselves were in all respects splendid specimens of team horses, of varying ages; the water used was that supplied to the town at large. In the feeding of the animals we found something which we deemed worthy of a closer investigation. For the previous four months they had been fed on Irish lowland meadow-hay, some of which had been badly got; on some American hay, of poor quality; on Indian corn and oats, of the best quality, with occasionally some germs of wheat (*i.e.*, the embryo and cotyledon of the seed, which being yellowish, are removed, in order to improve the colour of the flour), and *Indian mutters*, to the extent of from three to four pounds a day. The mutters were given after being washed in cold water, but they were not steamed or boiled.

After a considerable amount of trouble, we found that these mutters (the name is an Indian generic term for beans, peas, etc., in fact, for the seeds of the *Leguminosæ*) were the seeds of the *Lathyrus sativus* (vetch), grown in India, and recently imported into this country in large quantities as a cheap food for cattle and horses.

From some references supplied by Mr. Reynolds and Dr. Barron, we find that similar symptoms have been previously noted as arising from the use of lathyrus seeds.

An omnibus company in Rouen, France, after consultation with their veterinary surgeon as to some partial substitute for hay, which was at that time very dear, commenced, on October 18th, 1867, the use of vetches in a stable of fifty-four horses, giving each horse from one to two litres a day, continuing this till the middle of January, 1868. On January 12th, one of these horses

was noticed to be affected with weakness of the back and difficulty in walking; on February 27th he had an attack of roaring, for which tracheotomy was performed. This animal was subsequently worked, but died of Pneumonia on April 9th. Of these fifty-four horses, twenty-nine were similarly affected; nine died from Paralysis or from Asphyxia due to roaring, and twenty continued at work at the date of the report, still wearing tracheotomy tubes.*

We have learned that both Roaring and Paralysis are occasionally met with in India, in horses fed too exclusively on ripe lathyrus. The *green* vetch does not appear to produce any untoward results.

In the Indian Annals for 1857, Dr. Irving, of Allahabad, described a form of Paraplegia, or paralysis of the lower limbs, common in Pergunnah Barra, a district on the right bank of the Jumna, which disabled nearly 4 per cent. of the population, and which was known to be entirely due to the consumption of the flour of *Lathyrus sativus*. It was known that a proportion, not exceeding one-twelfth, might be safely mixed with flour or rice; if above one-twelfth, symptoms of poisoning were produced; and if the proportion of vetch-flour exceeded one-third, Paralysis set in, and was often complete in a few weeks. Dr. Irving further states that the symptoms come on during the rainy season, and particularly during the cold nights; and, further, that the female sex is almost entirely exempt from the disease.

In 1882, a similar disorder attacked many members (males only) of a tribe of Kabalye Arabs, in Algiers. This epidemic was investigated by order of the French Government, and put down as depending on the use of the flour of *Lathyrus cicera* during a season of scarcity.

In some parts of Italy, the lathyrus is avoided, the people believing that it produces paralysis of the lower extremities. After looking-up a large number of references on the subject, we find that, as the result of eating vetch-flour in any large quantity, for a period of several months, we may have, in man, paralysis

* The company had several other stables, and in all about 300 horses, but none were affected, except in the stable in which the vetches formed part of the food.

of the lower extremities, attended with spasmodic contracture of the muscles; in the horse, roaring, which is both inspiratory and expiratory, and may prove fatal by Asphyxia, attended in most cases with more or less paralysis of the hind limbs; and in the pig, as in man, paralysis with spasm. So far as we can learn, the lathyrus may be used with perfect safety in feeding oxen and sheep, as it does not appear to produce any symptoms in these animals.

No *post-mortem* examinations appear to have been made on any of the human subjects of lathyrus-poisoning; and in the Rouen epidemic, although several *post-mortems* were made, no lesions are noted, except fatty degeneration of the muscles of the larynx in one case.

We have performed a number of autopsies, but only three with microscopic examinations of tissues. In all cases, the naked-eye appearances were simply those of death from Asphyxia, with the addition, in one case, of well-marked wasting of the following laryngeal muscles on the left side, viz., crico-arytenoidei posticus et lateralis, and the thyro-arytenoideus; in this case, the left recurrent laryngeal nerve was also markedly smaller than the right, and fibrous on section. The lungs, liver, heart, and kidneys, were examined miscroscopically in only one case, and were found healthy. The spinal cord and larynx were examined in three cases, and in all the microscopical appearances were the same, differing only in degree. The lesions found were as follows:—All the intrinsic muscles of the larynx, with the exception of the crico-thyroids, were, to a varying extent, atrophied and replaced by fat. In one case the crico-arytenoideus posticus showed no muscular fasciculi whatever, and in every case examined, each of the muscles showed many fibres of greatly diminished diameter, some having lost all trace of transverse striation, except at points; and in some of the more manifestly affected muscles were to be seen empty and collapsed sarcolemma tubes. In all cases the left, and in two the right, recurrent laryngeal nerves were manifestly atrophied and fibrous in structure. In the case of the third, in the right nerve the change was comparatively slight, and the muscles supplied by it were the least affected of any examined. Under a high power

Fig. 1.

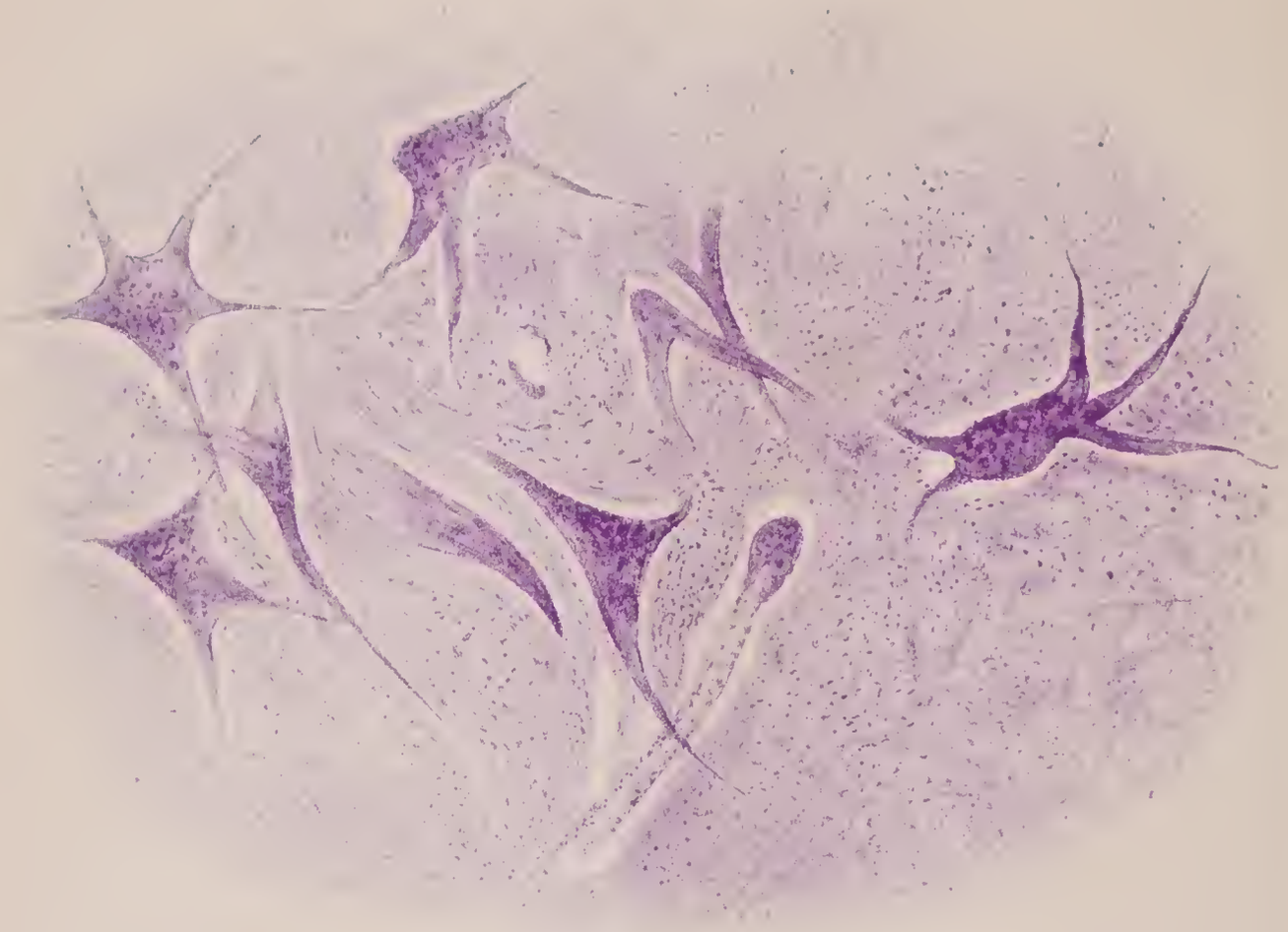
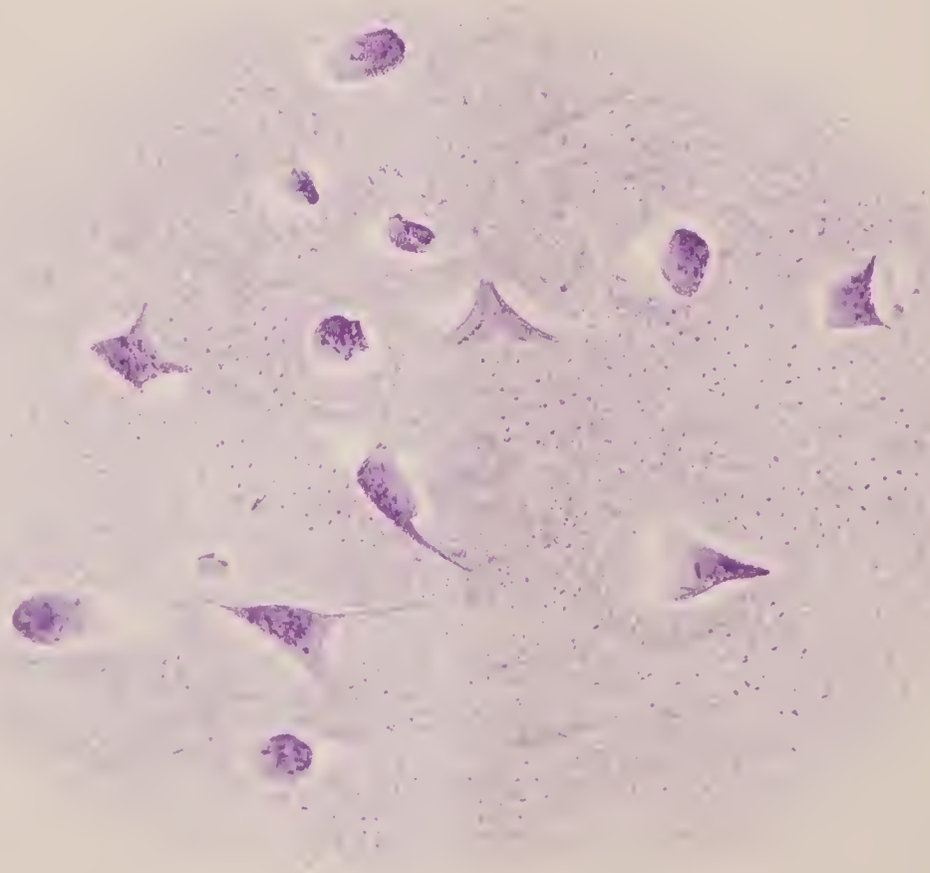


Fig. 2.



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the nerve-fibres were greatly diminished in diameter, with a varying increase in the connective tissue of the nerve. In one left recurrent laryngeal nerve no nerve-fibre could be detected.

The medulla was examined microscopically in only one case, and in this the motor cells in the vagal and accessory nuclei were noticeably atrophied. In the cords, the most marked changes were found in the inferior cornua, the multipolar ganglion cells being atrophied, their processes degenerated or lost, and the cells themselves represented by granular masses of pigment, lying in the otherwise empty lymph space in which these cells are contained. Compare Fig. 1 (annexed plate), a high-power drawing from the motor cells of a healthy cord, with Fig. 2, a drawing, under the same magnification, of a few cells seen in a section of the same area in one of the affected cords. The neuroglia of the grey matter was increased in amount, and in the white matter of the cord there was also, perhaps, a slight increase of this element; but the longitudinal nerve-fibres appeared to be unaltered, as were also the nerve-fibres of the superior nerve roots, while many of the fibres of the inferior roots were atrophied. In one case early descending changes (sclerosis) were moderately well-marked in the superior part of the lateral columns. In all cases there was thickening of the walls of the arterioles and capillaries of the cord, somewhat more marked in the grey than in the white matter. Unfortunately, we did not have an opportunity of making a *post-mortem* examination after the above facts were made out, as to the microscopical appearances of the cord and larynx, or we should have examined the peripheral nerves and skeletal muscles, particularly those of the posterior extremities.

The changes, however, as made out, point to a disease having many of the characters of Acute or Sub-acute Spinal Paralysis as met with in the human subject, and generally known clinically as Infantile Paralysis, or, speaking pathologically, as Anterior Polio-myelitis. As soon as the disease appeared, and before the mutters were suspected, the food appearing to be almost necessarily the cause, or intimately associated with it, was entirely changed, and the horses supplied with good hay, Indian corn, oats, and beans. The affected animals were also treated as

follows :—The bowels were first gently opened, and this was followed by the bi-daily exhibition of adequate doses of Liquor arsenicalis and Tinct. of nux-vomica, alternated with doses of Tinct. gentianæ. co. and Acid. nit. muriat. dil. The application of Ung. hydrarg. biniod. et canthar. over the larynx, along with the internal administration of chlorate of potash, was tried, but without any satisfactory result. In all cases of threatened death from Dyspnœa, tracheotomy was performed, with, as before stated, immediate relief. None of the horses recovered while in the stables ; a number were sent to grass, and of these some recovered, while others died.

A point, however, to which we would wish to direct particular attention, is this—that all the horses which recovered were attacked severely, but began to improve within a short time ; and that no horse ultimately recovered which did not show marked signs of improvement within a month from the time when first attacked with noticeable symptoms.

The stock, as before stated, consisted of 74 cart-horses and 6 ponies ; none of the latter were attacked. Of the 74 cart-horses, 35 were affected, viz., 30 horses and 5 mares. Of the 35 attacked, 19 died, and two were subsequently destroyed as useless ; 14 recovered. In 10 cases tracheotomy was performed, and one of these recovered, and is now at work. The first case occurred on March 5, and the last on May 4, nearly eight weeks after the mutters were discontinued.

It having come to our knowledge, in the autumn of last year, that some horses had died in Glasgow from eating mutters, we wrote to Professor McCall, who informs us, under date February 13th, 1885, that 12 horses have died in Glasgow from lathyrus-poisoning.

It is to be noted that our first cases all occurred in the beginning of March, when, after a period of exceptionally mild weather for the season of the year, we had a few weeks of damp, cold weather, with biting east winds ; and in Glasgow, although the mutters have been in use for some time, no cases of poisoning appear to have been observed until the early winter. These facts coincide with the date of the Rouen attack, and also with the already-stated facts as to the climatic conditions under which the disease occurs in India.

To sum up :—

FIRST.—As to the cause of the disease. We do not see that there can be any doubt but that the mutters were the sole cause of this outbreak.*

SECOND.—As to the nature of the disease : The lesions in the cord we would certainly regard as being primary, those of the nerves and muscles being secondary, and the cause of most of the symptoms. We should describe the cord lesion as being an *Anterior* (or, better for the horse, *Inferior*) *Polio-myelitis*, more acute in some cases than in others; and in this relation we would call attention to the fact that, as a general rule, this disease, as met with in the human subject, is most rapidly and perfectly recovered from in the more acute cases ; which also was the case with the horses.

THIRD.—As to treatment : It is difficult to estimate the value of the medicines given, but some of the horses certainly improved under their use. Several recovered completely while at grass.

FOURTH.—An interesting question now arises. What use can we safely make of the Indian mutter, or vetch ? So far as we can make out, from our own unfortunate experience, and from the literature of the subject, it is an extremely dangerous food for horses or pigs. Would boiling or steaming render it safer ? It may be used safely for cattle or sheep, even in tolerably large quantities.

NOTE.—While the foregoing paper was in preparation, one of the members of the firm, Mr. William Leather, F.R.C.V.S., who had taken a great interest in this subject, and had read a paper on it before the Liverpool Veterinary Association, in September of last year, died suddenly; otherwise we should have expected to have had the paper ready for the January number of the JOURNAL. We also desire to state that for the microscopic examinations, and the reports of the same, we are indebted to Dr. Barron, Demonstrator of Anatomy in University College, Liverpool.

DESCRIPTION OF PLATE.—Fig. 1, a drawing, under a magnification of about 300, of a group of multipolar cells from inferior cornu of healthy cord of horses. Fig. 2 : Drawing, under same magnification, of a similar group of cells in cord of a horse, the subject of lathyrus-poisoning.

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* It was suggested, at the commencement of the outbreak, that the disease might be of the nature of a specific fever, but as there was never in any case, so far as we could ascertain, any rise of temperature, and as a careful microscopical examination of the blood in two living cases, and of the tissues in three other cases after death, failed to reveal the presence of any micro-organisms, this does not appear to us to be at all a probable explanation.

NOTES ON A PECULIAR DISEASE AFFECTING MULES, RESEMBLING SCURVY.

BY ROBERT PRINGLE, M.R.C.V.S., A.V.D., BENGAL.

ABOUT the end of 1880, I returned from Afghanistan by route march, with a battery of artillery, to Meean Meer. There were many regiments and batteries on the road at the same time on their way down country. On arrival at Meean Meer many of them handed over their transport, consisting chiefly of mules and ponies, and proceeded to their several destinations by rail. We halted at Meean Meer for some time, when the battery was broken up, and I was posted to the station. Among other duties one was the veterinary charge of the transport.

On going down to the lines of this branch of the service, I found an extensive plain simply covered with mules and ponies. A few belonged to the station, the majority were left behind by regiments gone to various other places. There were several thousands of these wretched animals, left pretty nearly to shift for themselves. There were no lines* ; no order prevailed ; the native drivers were deserting freely—having been two years in Afghanistan, they were only too glad to get back to their homes again—so there was no one left to care for them ; grooming and exercise were equally unknown. It was quite a common thing to see half-a-dozen mules tied up to one peg by their heads, with no heel-ropes, or probably loose altogether. There was no line gear† ; no clothing ; all the animals were poor, and most of them suffering more or less from sores and injuries.

In a month or so matters improved ; lines were formed, so that one could walk about amongst the animals to inspect them ; line gear, of sorts, was being issued, and altogether things were looking better. Every three mules had a driver (a helpless coolie from the bazaar) to look after them, but as a rule he was either a small boy or an infirm old man—in either case equally useless, but still any one was better than no attendant at all.

* A piece of level ground, usually drained and furnished with earthen mangers, where horses can be picketted in lines.

† Head and heel-ropes.

I visited the animals only when requested to do so.

Shortly after the beginning of the hot weather, I was requested to give my opinion on a peculiar disease that had broken out amongst the mules. On arrival I found that four had died during the night, four or five were dying, and about twenty were sick. The ones that had died had been sick about fifty hours. I also found out that since the animals had been there (several months) they had received no exercise whatever, and from the day they came there, in their poor, lean state, they had been fed on dry gram and bhoosa* only. I have seen few circumstances that tend better to prove the endurance of the mule than the fact of his existing at all under such treatment.

From those that were sick I could see that all were suffering from the same disease, and showing it in all its ghastly stages. After attending for some days I found the symptoms were as follows :—

When an animal was reported sick, it generally was because it was lame and stiff in one of its shoulders, had a large swelling on the head or neck, under the belly, or on the shoulder ; in nine cases out of ten the latter—a large flat swelling, extending from near the withers to below the elbow, and from the middle of the ribs to half-way up the neck ; very little pain, temperature normal, and animal feeding well.

In about forty hours the swelling became tense, hard, hot, and painful ; *fever ;* the animal dull, off feed, and evidently suffering acute pain. This continued from twelve to twenty hours, at the end of which time a wet line, about a quarter of an inch broad, could be distinctly traced round the swelling, and in another day a slough had taken place, and a large circular piece of muscle and skin, usually about two or three inches thick, and from six to sixteen inches in diameter, was found either to have come away or to be in the act of doing so, leaving the ugliest wound I have ever seen.

The fever now in a great measure abated, appetite returned, and the animal recovered, but with a shoulder destitute of muscle and a leg about as thick as a man's wrist ; it bore no weight on the limb, and was of course useless.

* Barley or wheaten straw chaff.

As a rule they recovered if they lived till after the slough took place, but eighty per cent. died before the wet line was fairly established ; occasionally, after the slough took place the whole scapulas, shoulder-joint, and several ribs were left exposed. The wound discharged copiously a yellow fluid, scalding every tissue it came in contact with. I have seen a good deal of Scurvy in the human subject, and I think the peculiar character of the sore on a man's leg, after the slough takes place, identical with that in the case of the mules. Sometimes the swelling took place on the face and under the belly ; but in all places it was of exactly the same character.

This was the disease that presented itself to me, and I had never seen anything like it before, or heard of it.

Taking all things into consideration—the want of exercise, entire absence of green food, and the use of such a stimulating grain as "gram," I put the affection down as "Scurvy."

I began by giving a little exercise daily ; stopped the whole of the gram and bhoosa, and in their stead gave about twenty-four pounds daily of green wheat, cut just before the ear formed. This was the treatment adopted with the healthy, and it was quite evident that prevention was the thing to aim at. The mule is very fond of green wheat, and in about two days its action on the bowels was established, and in five or six days the disease had entirely disappeared, and was not heard of again for about a year.

Regarding the sick, when seen in the first stage, while the appetite was good, I had the affected animals placed aside, and gave them as much of the green wheat as they could eat. The effect was similar to that of a large dose of aloes. From the commencement I gave about twelve ounces of lime-juice daily. Under this treatment the majority recovered, the swelling going down with wonderful rapidity, and the slough in many instances not being bigger than a man's hand, and very thin. In a few weeks they were fit for work.

Regarding the *post-mortem* appearances, any one who knows Meean Meer as it was then (the thermometer standing at 101° in a large room fitted with every appliance to lower the temperature, while outside a fierce hot wind, laden with dust, blew from

morning till night, and added to this, Cholera raging in the station and district) will, I am sure, forgive me for not being quite so well up in this respect as I might have otherwise been. I only tried to make an examination once; the subject was about half an hour dead. I examined the part that was about to slough, but learned no more than I could have done during life. I had two "sweepers" doing the actual work for me, and any one who knows the ordinary man of that "caste" must be aware that, for all practical purposes, his olfactory nerves are useless. Nevertheless, when the abdomen was opened and gas escaped, the man staggered back, and actually fled from the spot. My nerves of smell are still intact, and being so my feelings may be imagined. I had to give it up, finding it impossible to exist anywhere near the carcase.

About a year after this, while passing through Meean Meer, I met the late Mr. Goldsmith, A.V.D., then in veterinary charge there. He at once began to give me a description of a disease of which the transport mules were dying, and which he could not understand. I went to the lines with him, and there was the malady again. Notwithstanding my advice, and the terrible lesson of the previous year, green food was not supplied, and exercise was in abeyance or insufficient. The same causes were in existence that had produced the disease previously. I told Mr. Goldsmith that I thought the disease was Scurvy, and advised him to do as I had done. The mules were fed on green wheat on his recommendation, and in one week the outbreak ceased.

Two things connected with the disease I cannot understand. First, beyond a "sore back" a mule is seldom ill. In heat or in cold, in hard work or idleness, well fed or starved, he will do as much work and withstand as much hardship as would kill half-a-dozen ponies; yet, though there were as many ponies at Meean Meer as there were mules, all mixed up together, and exposed to the same cause in every way, not one pony ever showed a symptom of the disease.

So far as I have been able to ascertain, the same disease has not been met with out of Meean Meer—perhaps no animals were ever so fed and managed elsewhere; yet this seems unlikely—still I feel sure the locality had nothing to do with it.

I have seen the whole muscle slough, and leave the jaw and molar teeth bare and exposed; at other times the ribs, and sometimes the abdomen. Weak and strong mules suffered alike. It is not contagious. Another strange thing was that the slough took place, certainly in nine cases out of ten, on the *near* side of the animal. I have thought that the disease might be allied to Anthrax, but all veterinary surgeons of experience to whom I have shown cases say that it is quite impossible that it can be so.

THE INTERNAL TEMPERATURE OF THE COW.

BY H. M. SINGLETON, M.R.C.V.S., EALING.

THE following observations were taken on February 17th, 18th, 19th and 20th, 1885, and commenced at 9 a.m. each day. Before commencing, I had my thermometer examined by Negretti and Zambra. The temperature was taken in the rectum, where the thermometer was allowed to remain three minutes in each animal. Of these 100 cows, twenty-five were in calf, the average temperature of which was 101·7° F.; the other seventy-five had previously calved at periods varying from two months to eight, and were in full milk.

101·1	101·3	101·0	102 3
101·8	102·1	101 3	101·0
101·3	101·3	102·1	102·1
101·8	101·8	101·8	101·8
101·8	101·1	100·8	101·8
101·1	101·8	101 8	101·8
101·0	101·0	102·0	101·3
101·5	101·8	101·3	102·3
101·5	99·8	101·8	101·8
101 8	102·0	101·3	102·1
101·3	101·0	101·1	99·8
101·0	101·1	101·5	102·0
100·8	101·5	101·0	101·1
102·8	101·0	100·5	102 8
101 8	101·1	101·5	102 0
101 0	101·1	101·0	102·3
102·1	101·0	101·3	102·0
102·0	100 5	101·0	101·3
101·3	101·1	101·1	101·1
101·3	101 3	102·3	101·8
103·3	101·1	102·1	101·8
101·8	101·5	102·3	101·5
101·8	100·8	102·2	101·3
101·8	101·3	101 5	102·3
101·8	101·1	102·0	101·1

Average temperature of 100 dairy cows = 101·5° F.

OBSERVATIONS ON SOUNDNESS.

BY R. H. DYER, M.R.C.V.S., LIMERICK.

(*Continued from page* 95.)

The visual organ being required to take cognisance of every surrounding object, its size, colour, shape, and form, during the night as well as during the day, it is necessary that the individual so circumstanced should have the power of moving that organ in as many directions as may be requisite. This is done by means of its muscles. Man is not endowed with the same power as the horse is, with regard to the movements of the globe of the eye. The human eye has no retractor-muscle; it is not required. The horse has, he not being possessed of hands. It may be said that the retractor (or that which the muscle influences) is to the horse what a hand is to man. It is necessary that each and every muscle of the globe of the eye, and its appendages, should be well developed, or the probability is sight may be impaired to a certain degree. It is often said of the muscles of the neck and leg that they are but poorly developed; but I have never heard it remarked that the muscles of the eye are in any way defective, except in the human subject, in that peculiar affection termed Strabismus. I do not remember having seen a horse squint; nor I never heard of such an affection. The muscle referred to would, I should imagine, prevent its being done.

This is a subject comparative anatomists may direct their attention to. It has been before remarked that some large horses have small eyes, and *vice versa;* but it has not, I think, been fully and satisfactorily explained. Our attention, as examiners, has been directed almost entirely to the lens. When we take into consideration the many and varied hues of light the horse has to take cognisance of, in daylight as well as in the dark, we need not wonder at his making some serious mistakes when the visual organ is out of order; and in addition to this, he has the ignorance, too often, of an ill-tempered master to influence or to puzzle him in his difficulties. I dare to say every reader of these observations has met with such instances during his career. Too much importance cannot be attached to the

development of muscle in connection with the eye of the horse. The direction in which light travels is always straight lines, if the medium through which it passes is of uniform density. When a ray passes from a rarer to a denser medium, it is refracted or bent towards the perpendicular; when a ray of light passes from a denser to a rarer medium, it will be refracted from the perpendicular; when rays proceed from several points of an object which is luminous, at some distance, and fall upon a double convex lens, they are brought to a focus upon the other side of it, so that an inverted picture is formed upon a screen placed in a proper position to receive it.

A well-known writer says: "The eye, in its most perfect form—such as it possesses in man and the higher animals—is an optical instrument of wonderful completeness, designed to form an exact picture of surrounding objects upon the retina, or expanded surface of the optic nerve, by which the impression is conveyed to the brain. The rays of light which diverge from the several points of any object, and fall upon the front of the cornea, are refracted by its convex surface whilst passing through it into the eye, and are made to converge slightly. They are brought more closely together by the crystalline lens, which they reach after passing through the pupil; and its refracting influence, together with that produced by the vitreous humour, is such as to cause the rays that issue from each point to meet in a focus on the retina. In this manner, a complete inverted image is shown."

Another writer, of equal celebrity, says: "Rays of light, on impinging upon the eye, are refracted through the transparent cornea, those incident on the sclerotic being reflected or absorbed. The cornea may be regarded as constituting the anterior surface of a meniscus lens, of which the posterior surface is formed by the anterior capsule of the crystalline lens, the aqueous humour forming the refracting medium of this fluid refractor. The rays of light which thus tend to be refracted to a focus pass through the pupillary opening of the iris, those passing too near the margin of the lens formed by the anterior chamber being reflected or absorbed; the iris, answering the purpose of the perforated diaphragms in microscopes and telescopes, and being capable of varying its aperture, possesses advantages altogether

unattainable in metallic diaphragms. The pencil of rays having passed through the fluid meniscus, impinges on the crystalline lens, and is there considerably refracted. This refraction is modified by the action of the vitreous humour, the last medium into which the pencil passes ; and finally, an inverted image of the object, from the several points of which the rays of light are propagated, is painted on the retina. All rays which are reflected in the interior of the eye, or pass too obliquely for distinct vision, are absorbed by the black pigment with which the interstices and folds of the choroid coat are imbued."

Sir D. Brewster says : "I have found the following to be the refractive powers of the different humours of the eye, the ray of light being incident upon them from air :—Aqueous humour, 1·3366 ; crystalline lens at surface, 1·3767 ; centre, 1·3990 ; mean, 1·3839 ; vitreous humour, 1·3394. But as the rays refracted by the aqueous humour pass into the crystalline, and those from the crystalline into the vitreous humour, the indices of refraction of the separating surface of these humours will be : From aqueous to outer coat of crystalline, 1·0466; from same to crystalline, using the mean index, 1·0353; from vitreous to crystalline, outer coat, 1·0445 ; from same to same, using the mean index, 1·0332.'

We are further told by Dr. Bird : "The eye in all warm-blooded animals is formed upon the type of man, with the occasional addition of supplementary structures, better fitting the organ for the performance of vision in the particular animal. In fishes, residing in a medium of nearly the same refractive index as the aqueous humour, the latter fluid becomes useless, and is replaced by a viscid secretion of greater refractive power. The crystalline lens is in these animals nearly spherical, and placed behind the cornea ; and the iris, which is close to the latter, is undilatable. In insects, the eye is simple, consisting of a lenticular cornea, placed in front of a nervous expansion. When an object is viewed with both eyes in a healthy condition, it appears single, whilst it is obvious that a distinct image is painted upon each retina. This is readily explained by the fact that the two images, lying exactly in the direction of the optic axis, overlap each other, and virtually produce but one impres-

sion. If the optic axis be not brought to coincide at the place of the object, the two images are separated, and then, as in the case of squinting persons, the object appears double, or confused."

The variation of focal length of the eye has been attributed by some physiologists to an alteration in the form of the crystalline lens by the contraction of its own fibres; but the structure of muscular fibre is so completely identical, from whatever part of the animal kingdom it may have been obtained, and so essentially different from the fibrous structure of the lens, that it appears difficult to conceive the existence of muscularity in that organ; moreover, in all the higher orders of animals, the muscular structures are copiously supplied with blood-vessels and nerves, neither of which have been detected in the crystalline lens.

In order that vision may be distinct, it is necessary that corresponding points of the object and of the retina should be conjugate foci of the eye; or, in other words, that the pencil of rays diverging from each point of the object, and entering the pupil, should converge to a focus on the retina. If, as in myopic, or short-sighted, persons, the rays converge to a focus before they reach the retina, from the too great convexity either of the lens or cornea, they impinge on that sensitive organ in a state of divergence, and the pencils proceeding from contiguous points of any object are superposed upon, and consequently confuse, each other; and the further the focus of incident rays is from the refracting surface of the eye, the further the focus of refracted rays will be from the retina, and consequently the greater confusion; hence, with persons thus affected, the difficulty of discerning objects increases with their distance from the eye. The very term "myopic" is derived from the effort naturally made to diminish the aperture of the transmitted pencils, and consequently the confusion, by partly closing the eyelids, on the same principle that an object placed near to the eye may be seen distinctly through a pin-hole in a card.

A concave lens, of suitable power, by increasing the divergence of the incident pencil, will diminish the convergence of the refracted rays, and consequently carry back each focal point towards the retina; and this is the kind of spectacles worn by short-sighted persons. In presbyopic, or long-sighted, persons,

on the contrary, the lens or the cornea is not sufficiently convex, and as the foci of refracted pencils are consequently situate behind the retina, a similar superposition and confusion of contiguous pencils ensue. In this case it is necessary to diminish the divergence of the incident rays, which is effected by a convex lens, and the convergence of the refracted pencils being thus increased, their foci will be brought forward to the surface of the retina. As the term "presbyopic" implies, this is the state of vision incidental to old age, and arises from the diminution in the convexity of the crystalline lens that naturally takes place in advancing years.

Individuals are not unfrequently met with whose eyes are as insensible to certain tints as the ears of others are to particular sounds. Several cases of this kind have been described, in which the following colours have been confounded by the persons affected with this curious defect of the visual organs: Bright green, with greyish-brown and flesh-red; rose-red, with green and grey; scarlet, with dark green and dark brown; sky-blue, with greyish-blue and lilac-grey; brownish-yellow, with yellowish-brown and grass-green; brick-red and rust-brown, with deep olive green; dark violet, with deep blue. This remarkable state occasionally occurs in disease, and disappears on the patient's recovery.

The author once treated a case of cerebral disease in which vision was previously perfect, but during the attack the patient confounded several tints with each other. The colours mistaken for each other in this instance were, in general, the complementary ones, red being mistaken for green, and orange being confounded with blue. Of the physical cause of this remarkable state, however, nothing is known.

It has been said, "The power of distinguishing colours is not enjoyed but by few persons, although their visual organs are perfect in other respects. An uneducated eye can convey to the brain no peculiar property of the object seen, such as colour, form, and distance—it is acquired by education." We see this in all young animals, and young children also. The hands and fingers of children are essentially useful; they feel the objects placed before them in order to learn their peculiarities. Persons

born blind, and restored to sight in after life, have recourse to the same means to accomplish the desired end. Colts and young calves generally employ their nasal organs for the same purpose, and so do most other animals with which I am acquainted.

ENORMOUS ENLARGEMENT OF THE SPLEEN OF A DOG, RESULTING IN RUPTURE OF THAT ORGAN AND SUDDEN DEATH.

BY W. P. ADAMS, M.R.C.V.S., A.V.D., REMOUNT DEPOT, OSSOOR, INDIA.

THE following case, which recently came under my notice, is, I think, worthy of record, for I am unable to find any mention of a similar occurrence in the dog.

A large Australian deerhound, imported at Madras in May last, died suddenly on the night of the 18th of December. *Post-mortem* examination showed the cause of death to be Rupture of the Spleen. The organ was of enormous size, and occupied the whole of the floor of the abdomen. The base was pressed against the diaphragm, the spleen then extended along the floor of the abdomen till it reached the pelvis ; here it doubled on itself till it again reached the diaphragm, when the point was folded inwards.

The weight of this diseased spleen was six pounds, length twenty-one and a half inches, and breadth at widest, nine inches; it was quite a jelly-like mass.

The dog suffered much from the effects of the voyage from Australia, and never recovered ; he was always dull and listless, unhealthy in his coat, and altogether out of health. I do not look upon the diseased condition of the spleen as primary disease, but am of opinion that it resulted from general cachexia brought on by the effects of the voyage and climatic influence, as does enlarged spleen in the human subject follow repeated debilitating attacks of Malarious Fever. The rupture had taken place at the doubling of the spleen at the pelvis, and might have been caused by even ordinary exertion, such as getting up or lying down.

BURSATTI: ITS CLINICAL CHARACTERISTICS.

BY RICHARD W. BURKE, M.R.C.V.S., A.V.D., INDIA.

(Continued from page 99.)

At a meeting of the Veterinary Medical Association, held in London, 26th June, 1838, Veterinary Surgeon Armstrong* described the disease as forming "a *painful* tumour which suppurates and breaks;" while Inspecting Veterinary Surgeon Oliphant describes the sore as being "particularly itchy" (VETERINARY JOURNAL, vol. x., July 1880, p. 18).

With respect to the method of removal of the so-called "kunkurs" in the skin, much clever discussion has from the first prevailed. Thus, in a paper on "Tuberculous Disease of Animals in India," Veterinary Surgeon J. T. Hodgson,† in reply to Captain Apperly, pertinently asks: "In the name of forceps, why must these 'kunkurs' be carefully scooped out with the *fingers?* Perhaps there is virtue in a stud-officer's finger, that the *touch* is the cure of the evil, and that it is vain for veterinary surgeons to try."

Veterinary Surgeon J. H. Steel,‡ in a paper on "Every-day Matters in Indian Veterinary Practice," says: "The enucleation of kunkur nodules is quite a novelty, and a very trying and vexatious one in surgical experience. For the latter purpose the finger-nail is perhaps the best instrument, as with it you have a great amount of touch to guide your scraping operations."

Veterinary Surgeon Hodgson was also the first, we think, to compare Bursatti with "Tuberculous Disease" (*Veterinarian*, 1851, p. 131), and hence he spoke of the "kunkur" nodules as being composed of what he termed "scrofula cells." Mr. J. H. Steel, speaking of a certain type of sores occurring on the lips of horses in India,§ which he considers allied to Bursatti, says: "They remind you somewhat of the ulcers seen in calves in that form of Actinomykosis which has been described as 'Tubercular Stomatitis'" (VETERINARY JOURNAL, 1884, p. 132). But are not such contrasts of quite dissimilar diseases? The

* "Proceedings of the Veterinary Medical Association," 1838, p. 236.
† Hodgson: *Veterinarian*, 1851, p. 132.
‡ Steel: VETERINARY JOURNAL, 1884, p. 132.
§ "*Ichthyosis equinus* in India." By R. W. Burke. In preparation.

sores which Mr. Steel describes as occurring on the lips of horses in India, and which we have also witnessed, have no analogies with Bursatti with which we are acquainted. There are many disorders that are allied to each other, but they are not, therefore, identical. There is not that indurated base here as seen in Bursatti; the histological and pathological characters of the two affections are, moreover, not alike; in fact, although having been noticed by veterinary surgeons in India more or less for the past thirty years, it has never once been found, in the opinion of these, to bear any clinical or pathological analogies with the disease to which I have been alluding.

The disease of the lips which Mr. Steel so well describes, and of which we have ourselves seen so many cases, at least in India, is the common form of Ichthyosis of human dermatologists, and is, even in man, the one form of disease affecting this part which is most frequently mistaken for Cancer.

Mr. Steel* remarks: "Do ordinary wounds become bursattic during the rains? I do not think they do." On this point, it may be well to mention, there is much difference of opinion. What does general experience teach? Veterinary Surgeon Armstrong,† after many years' experience in India, states: "The exposure of common wounds to the action of the air, or to the irritation produced by flies, will *dispose* them to take on the Bursatti character." And we could ourselves adduce many instances in support of this view, but pass on to the opinions of other veterinarians on the subject. Veterinary Surgeon Hart, who has had an extensive acquaintance with this disease during many years' sojourn in India, writes: "Should a simple sore or gall be in existence at the time mentioned, particularly if neglected, it will be very liable to assume malignant or bursattic action" (*Veterinarian*, 1873, p. 17).

And on this point Dr. C. H. Moore: "M. Broca has pointed out, what is undoubtedly true, that the epithelial form of Cancer *does* sometimes arise in the chronic ulcers themselves" (Extract from Dr. Mitchell's work on "Cancer").

The topic of Cancer transformation of ordinary sores has

* VETERINARY JOURNAL, 1884, p. 132.

† "Proceedings of Veterinary Medical Association," 26th June, 1838, p. 287.

therefore, a more extended application than that which we have chronicled as applying to the explanations of Bursatti production in the horse, as compared with the above disease in man. Instances of ordinary sores becoming Bursatti are by no means rare; but perhaps the most interesting thing about this topic, and one which would appear to be overlooked, is the fact of sores having been mistaken for Bursatti which had nothing in common with the nature of that disease, and yielded readily to simple dressings. Many cases of abrasions of the skin, caused by "brushing," on the inner aspect of the fetlocks of the horse, for example, have taken on malignant characters, and terminated into Bursatti; but probably a good many others, recorded as such, had no feature belonging to the last-named affection. Errors in diagnosis in this particular are by no means infrequent, and I have myself been surprised, in not a few instances, being asked to "look at a horse suffering from Bursatti," but which presented none of the characteristics of that disease!

Another fact of great importance in the clinical history of Bursatti is *absence of inflammation characterising the sores*, both before and after the development of the latter. Inspecting Veterinary Surgeon J. J. Meyrick, C.B., in a lecture delivered at the Aldershot Military Veterinary School, in 1881, said the disease was non-inflammatory." And on this point John Hunter* writes: "True suppuration arises from inflammation, terminating in a disposition to heal, which is not the case with Cancer."

Also, the seats of disease in Bursatti are the same as those belonging to Cancer in man (but especially to the epithelial variety of Cancer), namely, on muco-cutaneous surfaces and parts most exposed to friction and the irritation produced by the collection of secretions, of dirt, etc. Hence the favourite sites of Bursatti are seen to be the angles of the mouth,† which are liable to irritation by the bit; the inner aspect of the fetlocks, more especially in horses that are given to habitual "brushing"; the prepuce; the lachrymal‡ region, and elsewhere.

* "On the Blood," 1828, p. 493.

† This is more frequently the seat of the disease in horses belonging to natives, who usually ruin their animals by the cruelly-sharp bits they use—so sharp as often to cut the mouth.

‡ Mr. Meyrick's remarks on the use of *eye-fringes* are significant, and demand attention.

Bearing in mind these facts, we may form a conception of at least the clinical resemblance of Cancer in man and Bursatti as it occurs in the horse—facts which in this particular prove the closest relationship between the human and equine disease.

Again, does Bursatti prove rapidly fatal in its effects? Perhaps very little more rapid than Melanosis* does in the same class of patients, viz., in horses. And, writes Dr. Wilks on this subject affecting man, "Melanotic Cancer is only ordinary Cancer pigmented, *but otherwise just as usual*" ("Pathological Anatomy," Second Edition, p. 239).

With regard to a question that has arisen regarding the fatality of this disease (Bursatti) in the horse, it may be well to mention that operation is seldom practised in these cases, which common opinion would account for the larger number of ill-effects noted in the course of the human disease, where surgical interference is one of the most prevalent modes of treatment in operation.

Dr. T. W. Cooke writes: "The fallacies which surround numerical inquiries regarding Cancer are infinite. What becomes of all that large number of cancerous patients who attend the out-patient rooms of the hospitals for years and years, and who at the same time continue their domestic or other duties with heroic fortitude? From 1851 to the end of 1863, we have had the opportunity of seeing at the Cancer Hospital 413 persons who had been operated on for Cancer; and it will astonish the reader to be told that *the average lapse of time before the disease returned in these cases was no more than six and a half months.*† It is true that, in a very few instances, ten years have elapsed before the disease has again manifested itself." ("On Cancer: Its Allies and Counterfeits," pp. 92-3.) Dr. Mitchell, p. 276, says: "Operation accelerates the activity of the disease by exciting inflammation and activity of the vessels—arterial, venous, and absorbent—of the surrounding part." Dr. Walshe, quoted by Dr. Mitchell,

* "Melanosis in the Horse." By R. W. Burke. VETERINARY JOURNAL, 1882.

† The experience of veterinary surgeons in India shows that Bursatti sores which, with good treatment, subside about the end of September, viz., with the termination of the rains, again redevelop their activity next April or May. It is also true that reported cures of this disease have now and then been recorded in veterinary periodicals.

says: "Cancers which have become quiescent have sometimes been cut out, and the operation been followed by rapid reproduction of the disease." Inspecting Veterinary Surgeon George A. Oliphant writes: "The state of the system existing in Bursatti is not one that indicates the use of the knife" (VETERINARY JOURNAL, vol. x., July, 1880, p. 20).

One more important characteristic of a Bursatti sore is that after an apparent cessation of the disease for months, it may be one, two, or more years, when the morbid process does return, it does so, as a rule, not in remote parts of the body, and indiscriminately, but in structures immediately adjacent to its original site. Can anything different be said of the clinical history of human Cancer? And we have here only dealt with facts of comparison, which, to the best of our belief, have attracted the attention of most veterinarians—exigencies of space not permitting us to give our own quota of experience, where this seemed in agreement with the above citations. The histologic character of the morbid products called *kunkurs* has been already studied by Drs. Fleming and Thin, who have pronounced them to be simple cell concretions. And on this subject Dr. Wilks writes: "After removal of the breast, when the disease returns in the skin and around the cicatrix, it does so as a number of hard nodules, which, when examined, will be found to show compact epitheloid cells imbedded in the meshes of a fibrous matrix" ("Pathological Anatomy," p. 280).

In fine, the veterinarian is struck with the resemblance of the equine to the human disease, whereas, in fact, his sense of conviction comes from having some slight acquaintance with its characters under both conditions—a knowledge of clinical facts, the absence of which put our system of inquiry pursued upon short commons. The inquiries conducted by scientists in their researches concerning the nature of other diseases exhibit this. And there is unquestionably some difference in the methods of inquiry hitherto conducted in regard to this disease, since they have not always been all-embracing in their character, but confined or restricted in scope, and having other deficiencies besides. I am sure that many of our readers will agree with me in regretting the exaggerated rage for preference for one or the other

branch which prevails in these days. It may be a capital procedure, but manifold forms of inquiry are needed that each part of our science may have a share of influence over the study of this disease.

We may, then, admit that there is abundance of room at the present time for still further investigating the subject of Bursatti in India.

The objections that have been raised against our system of comparison adopted are eclipsed, therefore, by the large amount of corroborative evidence we have brought to bear in favour of the identity of the human and equine disease.

Add to these the important fact, that all inoculation experiments hitherto conducted by different veterinary surgeons, as well as those more recently performed by ourselves, positively determine the point in the negative. *The disease cannot be inoculated.*

The explanation with respect to the parasitic nature of this disease appears forced ; and we can only say that such a theory of the origin of Bursatti does not at present appear susceptible of application to cases we have been considering, and must therefore be regarded as, up till now, insufficiently established. There is an impression prevailing that if the disease were due to the action of a parasite, that parasite would be readily demonstrable in the morbid products termed *kunkur*, as is natural to expect. Yet the facts are that Dr. Thin, after carefully examining these bodies, failed to find any trace of a parasite alleged to be present in them. And Dr. Thin I knew to be one of the foremost microscopists in England, and not likely to overlook the presence of that which has been thought causative of this disease. More recent examination made at the Brown Institution, London, entirely disproves the notion of a parasitic origin of Bursatti.

Even in the early history of human Cancer it was remarked and suspected that the disease was in some way associated with *parasites*, and so we find in Dr. Mitchell's recent work on "Cancer" a section or chapter chiefly devoted to the consideration of whether the disease had an "*animal*, *vegetable*, or *animalcular*" origin. This view, however—the parasitic origin of Cancer—has now been dissipated by the careful researches of Kolliker, Lebert, Kolk, Vedl, Paget, Beale, and others, which have proved of the

utmost value in demonstrating in what consists the essential diagnostic test of that destructive disease.

In my consideration of the pathology of Bursatti I have not been moved by any preconceived theory, but by an accumulation of both clinical and pathological facts; and it was only after the acquisition of those facts that I became aware of the beliefs propounded by supporters of the parasitic theory of that disease, which go so far to support the view I have taken, after comparing my observations with the writings of surgeons upon human Cancer.

(*To be continued.*)

Editorial.

DISEASE GERMS.

The study of diseases which are surmised to be due to the action of germs, is every day attracting increased attention—it may be said, all over the world. The greatest step which has been achieved in medicine, at least in this century, is that in which some of the most deadly maladies have been traced as due to micro-organisms. True, the notion that contagious diseases were due to living particles—*a contagium vivum*—is no novelty. Long ago the hypothesis was started that these disorders were caused by such particulate bodies, and, to a certain extent, upon this hypothesis were based certain preventive measures in their treatment. But it was not until the microscope had been brought into use by careful and philosophical investigators, that this hypothesis was reduced to a solid and substantial fact. To a French veterinarian, Delafond, is due the credit of having been the first to distinguish such particles in the blood of animals affected with Anthrax Fever; and though, at the time, their relationship to the disease was not established, or, perhaps, even suspected, yet the discovery was one pregnant with grand results. Pollender, then Brauell, of the Dorpat Veterinary School, afterwards Davaine and a host of other observers and experimenters, but especially the distinguished veterinarians, Chauveau, Toussaint, and, lastly, Pasteur, have settled all doubts as to the rod-like bodies—the *bacilli anthracis*—being the immediate and direct agents in the production of that most fatal disorder. In more recent times, the organism producing Fowl Cholera has been isolated; at the University of Louvain the germ which gives rise to Contagious Pleuro-pneumonia in cattle was recognised some time ago; Arloing, Cornevin, and Thomas have fixed upon the germ which causes Carbuncular Emphysema (Black Quarter); Koch has incontestably demonstrated the existence of a special germ in Tuberculosis; Schutz and Löffler have proved the presence of a bacillus in Glanders; Semmer, of Dorpat, reports the discovery of special organ-

isms in Rinderpest, Canine Distemper, and other animal maladies. In a large number of other diseases—as Variola, Cholera, Yellow Fever, Relapsing Fever, etc.—organisms have also been detected; and there can scarcely now remain a doubt that in all transmissible maladies in which a particular germ has not yet been found, these will ultimately be fixed upon. The care, close observation, and diverse processes needed to reveal the presence of these exceedingly minute particles is very great. Each appears to have its own particular affinity for some colouring or staining matter, or demands some special method of treatment before it can be made manifest and fixed upon as the *fons et origo mali*. The great number and variety of germs, of microscopical particles, which may be found in a diseased creature is extremely baffling to the investigator; and though one of these may be singled out as the generator of pathological processes, yet the careful seeker after truth would not have the temerity to pronounce definitely upon it until he had put it to the crucial test of isolation, repeated artificial cultivation, and, above all, successful inoculation in a living animal. The utmost circumspection and strongest proof are needed to determine the actual germ which produces a certain disease. Such investigations are generally carried out with the greatest difficulty, and demand extreme patience and great technical skill, as well as a highly-trained intellect, to pursue them. This being the case, we need scarcely wonder that mistakes are frequent, and errors of observation far from being rare, while conflicting opinions are rife in some cases. Not only this, but there seems to be a particular fascination in building up hypotheses with regard to the action of these germs; and until certain points in their life-history and mode of action, or pathogenesis, are made out, this will continue. Those who understand the subject best are slowest in arriving at conclusions; and a certain amount of incredulity is necessary in accepting many statements made with regard to micro-organisms. For instance, Hans Büchner startled the scientific world, in 1880, by announcing that he had been able to convert the bacillus of Anthrax into the harmless *bacillus subtilis*, and the converse. Such a discovery, if real, would have effected a wonderful revolution in biological notions, and some minds actually received it as a fact; but it has now been shown to be a myth, and that no such transformation can be effected—no more than Cow-pox can be converted into human Small-pox, or the reverse. Every malady, we feel certain, has its own special organism or factor, which remains in possession of its distinctive characteristics as rigidly as does the dog or the cat, the carrot or the turnip.

It may be asked to what purpose this research into disease germs can be applied, and those who little understand the import of such discoveries and researches may be inclined to dismiss them with derision; but it may be pointed out that already, both in preventive and in clinical medicine, the knowledge already acquired has been productive of great good, and will yield yet more startling benefits. Protective inoculation with cultivated virus has been introduced only since the existence of germs has been determined, and the greatest advance in surgery made in this,

or perhaps in any other, age has been based on the germ theory of disease; the most formidable operations—operations which could not have been attempted, or were not even dreamt of, not long ago—are now almost daily successfully carried out on the Listerian or Asceptic system. The germ theory gives us light with regard to disease processes where darkness reigned before; and in abnormal, as well as in normal processes, it gives a satisfactory explanation to what was previously hidden or obscure.

PROTECTIVE INOCULATION IN INDIA.

FROM an interesting set of papers just issued by the Government of India, we learn that a laboratory is to be fitted up by the General Superintendent, Horse-breeding Operations, Bengal, for the purpose of systematically preparing and experimenting with virus protective prepared on M. Pasteur's system. To Mr. J. Mills, Army Veterinary Department, and Inspector of Cattle Disease at Madras, the credit is due of being the first to experiment in India on M. Pasteur's system. From the papers we have referred to, we find that in June of last year Mr. Mills conducted a series of experiments on ponies, donkeys, cows, bullocks, buffaloes, sheep, and guinea-pigs—88 in all—with marked success. The animals were inoculated with Pasteur's so-called anthracine, and then "two drachms of blood, taken from the carcases of guinea-pigs dead from Anthrax, were injected under the skin of the neck over the parotid region" in some cases, and "under the skin of the thighs" in others. In the cases of the pony and donkey an abscess, the size of an egg, with a very hard base—in fact, like a carbuncle—formed at the seat of inoculation, but gradually subsided. In the other cases no traces of the puncture were seen. None of the animals went off their feed, and all did well. In addition to these trials, a protected pony and buffalo were sent to a village where Anthrax existed, and were herded with its cattle and grazed on the same pastures, and yet escaped. Protected guinea-pigs were placed in the same cage with others dying from Anthrax, and where there was considerable hæmorrhage from the lungs before death, and yet none became affected. Mr. Mills calculates that it will cost from four to six annas per head per horse, ox, or buffalo, and from two to three annas per sheep or goat, and he urges that the anthracine should be imported from M. Pasteur in France, and systematically employed through the Madras Presidency. The Inspecting Veterinary Surgeon (Dr. G. Evans), however, did not share Mr. Mills' sanguine views, but was inclined, in deference to the reports made by Dr. Klein at the Brown Institute, London, and by Dr. Buchanan, the Medical Officer to the Local Government (London) Board, to doubt whether the fluid would always answer in India. He urged that while M. Pasteur operated successfully, the fluids sold by his accredited agents were not infrequently found not only valueless, but sometimes harmful. He, therefore, suggested further experiments on inexpensive animals before the system should be generally adopted. Accordingly, the Madras Government sanctioned a series of experiments being carried out. On these papers being sent to the Government of India, that Government learnt that experiments had been tried on elephants in Burmah with the most satisfactory results. At no time were the animals off their feed, and although the inoculated animals were re-inoculated with virus taken from a true case of Rinderpest, they escaped without showing the slightest sign of infection. The success in Burmah was considered so satisfactory, that the agents of the Bombay-Burmah Trading Corporation expressed their intention to use Pasteur's fluid on all

their elephants at Mingyan and on the Chindwin Valley forests. With these facts before them, the Government took the sensible step of moving the Secretary of State to direct Mr. J. H. B. Hallen, the General Superintendent of Horse-breeding Operations in India, who happened to be at home on leave, to proceed to M. Pasteur's laboratory in Paris to learn the system, not only of the so-called vaccination, but of the mode of preparing the fluid. Mr. Hallen accordingly went over to M. Pasteur's establishment, and was met by that gentleman's representative, "who most fully explained and demonstrated, with the necessary apparatus, the measures adopted in detecting and cultivating Anthrax germs, attenuating the virus, so as to render it 'vaccine,' of the two kinds, the *premiere* and *deuxieme*" He also pointed out how the operation of vaccination was performed. Mr. Hallen returned to London fully converted to M. Pasteur's theory, but he considered that it would be futile to expect success if India imported its vaccine. He accordingly addressed the Secretary of State, urging that all veterinary surgeons in future be required to go through a systematic course under M. Pasteur, to learn his system of preparing the vaccine and of inoculating cattle, and that the Government of India should establish laboratories at central stations for the manufacture and dispensing of the fluid. The cost involved he calculates at £300 per centre. The Government of India have accordingly directed the establishment of one such centre, which, if it prove a success, will be the pioneer of others to be placed all over India.

Reviews.

Animal Plagues: Their History, Nature, and Prevention. By George Fleming, LL.D., F.R.C.V.S., etc. Vol. II. (London: Ballière, Tindall, and Cox.)

A Statistical Chronology of Plagues and Pestilences as Affecting Human Life. By Cornelius Walford, F.I.A., F.S.S., etc. (London: Harrison and Sons.)

A second volume of Dr. Fleming's classical work on "Animal Plagues" continues the history of these afflictions from A.D. 1800 to 1844—a most important interval, so far as this country at least is concerned. The volume is a sequel to that published in 1871, which embraced a chronological history of epizoötic, and, incidentally, of epidemic and epiphytic diseases, during the enormous stretch of time between B.C. 1490 to A.D. 1800. The same plan has been followed in this as in the first volume, the record for each year being made to embrace the outbreaks of general disease among animals of different species; the nature and symptoms of the various disorders, and their relation to, and dependence upon, specific, atmospheric, telluric, parasitic, epiphytic, or other influences—all being given, when possible, in the words of the various authors who described them. It is difficult to find language which can adequately and briefly express the paramount interest and importance such a work as this must possess for the historian of civilisation and of human progress, of medicine—human and comparative—of agriculture, and more particularly of sanitary science and veterinary medicine. In the first place, it is a monument of erudition, patience, and research, which few, even among those whose training and leisure might give

them opportunity for such a task, would attempt to rear, and one of which few professions can boast, and of which any might be proud. The term "wonderful" is that which, perhaps, best expresses one's feelings after a perusal of the two volumes, and one rises from them with a sense of the great wealth of general and special knowledge to be found in the records of the past, such as those which had to be unearthed, examined, and studied in the various languages in which they were written, in order to compose the two volumes of the work now before us. This work may be said to be a standard and classical treatise on the subject with which it deals, for generations to come, if not for all time; it is the kind of book that never dies. The multitudinous authorities who have written during all ages on animal plagues, or who have casually referred to these, or to phenomena in connection with them, are quoted literally; thus obviating the need for future students consulting these authorities, and those who know the difficulties that so often present themselves when it is desired to consult original works—many of them so rare that they are only to be found in great libraries, like that of the British Museum—in diverse languages, will be able to appreciate this inestimable advantag e. Thehistory of veterinary medicine is really to be found in this history of animal plagues, and it is traced, from its earliest infancy up to forty years ago, in a most instructive manner; while the origin, course, extension, and ravages of Cattle-plague, Foot-and-Mouth disease, Rabies, Sheep-pox, Glanders, and a host of equally destructive maladies, are given in detail. Not least important, perhaps, are the references to that Protean disease, Influenza, which show that more than a century ago it was as well known as in the present day, and as well described as in any modern veterinary books, though not by the ridiculous names—such as "Pink-eye"—which it receives in these books.

The great importance of a work of this kind cannot be gainsaid, and the subject with which it deals should form a portion of the education a veterinary surgeon receives at college. Its neglect has been highly detrimental to the progress of veterinary medicine, and very injurious to agriculture. The author notices this in his preface to the volume. "The value of a history of contagious diseases of animals," he writes, "cannot be doubted. Had the history of Foot-and-Mouth disease and Contagious Pleuro-pneumonia of cattle on the Continent of Europe, been known in this country as it is exhibited in this volume, these terrible disorders would surely never have been allowed to invade our shores in 1839 and 1841, or when they did appear, they must have been quickly suppressed. The dreadful havoc made by them and other preventible diseases has been largely, if not altogether, due to ignorance of their history; and it is owing to this ignorance that England has been chiefly instrumental in disseminating Contagious Pleuro-pneumonia over nearly the whole world."

This *magnum opus* should be read and studied by every veterinary surgeon and student who aspires to a knowledge of his calling and an acquaintance with its literature. His eyes will be opened at the grand extent of the latter, and his mind cannot be otherwise than elevated and

expanded. We know of no other work of which so much could be said in its praise; it is a scholarly and masterful production, and one which reflects the highest credit on English veterinary medicine.

Mr. Walford's book, which has been printed for private circulation, is the substance of a paper read at a meeting of the Statistical Society in 1882; and the brief chronological notices of human pestilences is preceded by an inquiry into their causes, etc., which embraces some curious facts, but these are chiefly of value to the practitioner of human medicine. G. W. S.

THE VETERINARIAN'S POCKET REMEMBRANCER. By GEORGE ARMATAGE, M.R.C.V.S. Second Edition, Revised. (J. and A. Churchill: London.)

A second edition of Mr. Armatage's handy little work scarcely calls for any comment. As in the first edition, care has been taken to include everything likely to be of aid to the busy practitioner in the treatment of urgent, difficult, or rare cases, and in this edition the subjects and directions appear to be well brought up to date. We can recommend the little book as a trustworthy *aide-mémoire* to all those who require a reminder of how to act in peculiar or unfrequent cases.

THE ANATOMY OF THE HORSE: A DISSECTION GUIDE. By J. M'FADYEAN, M.B., C.M., B.Sc. (W. and A. K. Johnston: Edinburgh and London.)

Professor M'Fadyean has produced a work which may be looked upon as a novelty in veterinary anatomy. The student was already well supplied with text-books of anatomy, some of which treated only of the horse, others of that animal and the chief domesticated creatures, the structure of these being compared with that of the horse. The chief, and most important, of all these is the excellent "Comparative Anatomy of Domesticated Animals," by Chauveau and Arloing, than which nothing better has yet been produced, whether for completeness in detail, clearness in description, arrangement, or illustrations; it being also, to a considerable extent, a dissection manual, in which light it is looked upon in all the Continental schools in which the French language is employed, and also in English-speaking schools, through the translation which was published a few years ago. But the work now before us is essentially, as is stated, a dissection guide to the anatomy of the horse, resembling, to some extent, the manuals which are at the service of the students of human anatomy. As a book for use in the dissecting-room, there can be no doubt that students will find it exceedingly useful, the methodical arrangement and the descriptions being eminently calculated to ensure that object. The coloured plates form a striking feature in the work, the majority of them being original, and well drawn and printed, while their correctness appears to be absolute. There are many woodcuts, the greater number of which are borrowed from Chauveau and Leyh; of these we cannot say so much. Whatever process has been employed in reproducing them, the result cannot be said to be satisfactory, as they are harsh, indistinct, and disfiguring, and greatly depreciate the other-

wise excellent get-up of the book. Perhaps the worst of all is Figure 47—copied, it would appear, from Chauveau—representing the generative organs of the mare; Figures 7, 12, and 19, are not much better. But these are small faults when compared with the great merits which are to be found in a volume that manifests in every page careful and conscientious work by one of the most promising of the younger veterinary teachers in this country. Students should feel grateful for the great assistance he offers them; and if those who avail themselves of his guidance do not become good topographical anatomists, they will only have themselves to blame. The facilities for acquiring a knowledge of anatomy in our schools are now so great, so far as text-books are concerned, that no excuse whatever can be accepted for ignorance of this section of veterinary education. When we remember that, a quarter of a century ago, students had no other help in this direction than was to be found in Percivall's "Anatomy of the Horse," without any information as to how dissections were to be made, we cannot but be struck with the great advantages learners now enjoy. Professor M'Fadyean's book differs in several respects from anything hitherto published in veterinary anatomy, and deserves high commendation for the skill displayed in producing it; while the publishers deserve praise for the manner in which they have done their share of the work.

A Manual of the Theory and Practice of Equine Medicine. By J. B. Gresswell, M.R.C.V.S., and A. Gresswell, F.R.C.S. (London: Baillière, Tindall, and Cox.)

The name of Gresswell is one which has been known and respected for many years in the veterinary profession in this country, and we are glad to find that it is still likely to maintain, and even to enhance, its position in the future, through the production of this excellent work by the two sons of the late member, whose reputation was so firmly established as a sound and accomplished practitioner and a good citizen. Too much praise can scarcely be awarded the "Manual of Equine Medicine," whether for its lucidity, its conciseness, its general trustworthiness, or its high scientific character. It is a model of what a manual should really be in completeness and perspicuity. In its 367 pages it contains more than is to be found in many books nearly twice the size, and yet it embraces everything relating to the subjects on which it treats which is worthy of note. The arrangement is good; there are chapters on the causes, symptoms, and the classification of disease, general pathology, vegetable parasites, general diseases, diseases of the various organs and systems, a chapter on equine entozoa, and another on toxicology. For the student or busy practitioner a better book on the subject is not to be found; the views enunciated are according to the most modern opinions, and the treatment recommended founded upon practical experience, while the morbid anatomy of the different maladies is given in clear, though brief terms. The book is well got up, the typography being a notable feature. One or two little errors might be indicated here and there: as, for instance, when treating of Anthrax, it is stated that Gerlach, in 1845, first demonstrated the contagious character of the disease,

and Pollender, in 1855, first demonstrated the vegetable rod-like organisms, or bacilli anthracis, peculiar to the malady. The history of Anthrax does not appear to be very well understood in this country, mistakes in this respect being common, especially in medical works on the subject. The contagiousness of the disease has been recognised for several centuries; and with regard to the bacilli they were first alluded to by Delafond, in his "Traité sur la Maladie du Sang des Bêtes à laine," in 1845. It was in 1849 and 1855 that Pollender drew special attention to these organisms; Brauell, of the Dorpat Veterinary Institution, also throwing much light upon them in 1857, and subsequently. But such errors as this are of minor importance, and in no way detract from the usefulness of the work, which should prove of great service to veterinary students preparing for examination.

Training and Horse Management in India. By M. Horace Hayes, M.R.C.V.S. Fourth Edition, Revised. (Thacker, Spink, and Co., Calcutta.)

Though the subject of this work is rather foreign to our literature, it, nevertheless, assumes importance from the fact that horse management in India pertains to the daily routine of duty of the veterinary surgeon in that country, while to others there it demands attention, if they own horses, and have to superintend the training and management of them. To these Captain Hayes' book has been a boon, as is evidenced by the rapidity with which it has passed through three editions; and the edition now issued, which has been carefully revised, will, we feel assured, prove no less useful. In noticing the last edition, we gave an outline of the scope of the work, and we have only now to note that a chapter has been added on teaching horses to jump, and on steeplechase courses, while the vocabulary has been re-arranged. The book now appears to be eminently adapted for its purpose.

Proceedings of Veterinary Medical Societies, &c.

MIDLAND COUNTIES VETERINARY MEDICAL ASSOCIATION.

The fifty-fourth meeting of the above Association was held at the George Hotel, Walsall, on Friday, January 2nd. The chair was taken by the President, H. M. Stanley, Esq., and there were also present Professor Walley, Edinburgh; Captain Russell, Grantham; R. C. Trigger, Newcastle-on-Tyne; T. Greaves, Manchester; H. J. Cartwright, R. H. Cartwright, and H. D. Pritchard, Wolverhampton; E. Meek, Walsall; J. M. Parker, Birmingham; F. W. Wragg, London; A. Over, Rugby; J. H. Reynolds, Daventry; —Smith, Tunstall; H. Blunt, Lutterworth; T. Chambers, Dudley; R. H. Collett, West Bromwich; J. Malcolm, Birmingham; F. Blakeway, Stourbridge, Treasurer; E. Beddard, Wolverhampton, Honorary Secretary.

Messrs. Kettle, of Market Drayton; Fairbank and Bullen, Wolverhampton; J. Blakeway, Stourbridge; and J. Forsyth, Walsall, attended as visitors.

Letters of apology were read from the following members :—Messrs. A. Hodgkinson, Hanley ; G. Bland, Alfreton ; W. Drewitt, Gloucester ; H. R. Perrins, Worcester ; C. Moir, Cardiff ; J. L. Barling, Hereford ; Dr. Fleming, London ; T. G. Munck, Northampton ; W. C. Barling, Newnham ; R. Verney, Stratford-on-Avon ; R. Freer, Uppingham ; F. W. Barling, Ross ; L. C. Tipper, Balsall Heath ; W. Carless, Stafford ; and A. Green, Dudley.

The minutes of the previous meeting were read by the SECRETARY, and on the proposition of Mr. BLAKEWAY, seconded by Mr. PARKER, they were unanimously adopted.

Mr. BLAKEWAY said since last meeting of the Association the hand of death had removed one of their members He referred to the death of Mr. George Carless, of Worcester, whose father was one of the oldest members of the Association, he might say he was one of its founders. They should be guilty of a dereliction of duty if they allowed that meeting to pass without sending a letter of condolence to the members of the family in their sad bereavement. He therefore proposed "That the Chairman and Secretary be empowered, on behalf of the Association, to send a letter of condolence and sympathy to Mrs. Carless and the members of her family."

Mr. BLUNT seconded the proposition, which was carried unanimously.

Financial.

Mr. BLAKEWAY, Treasurer, then proceeded to read the annual financial statement. He said it would be recollected that this year they had had an extraordinary expenditure, the Association having voted the sum of £50 towards the new college building fund. They commenced the year with a balance to their credit of £93 11s. 5d. ; there had been received in subscriptions in 1884 £32 10s, and bank interest £2 16s. 10d., making a total of £128 18s. 3d. After paying off certain accounts, they had now a balance in hand of £120 12s. He must, however, remark that they were not in so satisfactory a condition this year as they were last, inasmuch as they had not a single member in arrears with his subscription, but he was sorry to say that this year there were four members who had neglected to pay their subcriptions. Perhaps that state of things was owing to his want of energy—(No, no)—and probably a younger treasurer would be able to secure the subscriptions more rapidly than he could. (No, no.)

It was then proposed and seconded, and unanimously agreed to, that the statement of accounts be passed.

Election of Officers.

Mr. GREAVES said he rose with very great pleasure to propose a gentleman to preside over their meetings during the ensuing year. The next twelve months of the Association would be a very important period in its history, on account of the meeting of the National Veterinary Association at Birmingham. It was therefore desirable that the person occupying the position of President of the Association should be connected with Birmingham—(Hear, hear)—and he had no doubt he was speaking the wish of every member of the Association when he said that they could not do better than elect the present President. (Hear, hear, and applause.) The name of Stanley was a household word, not only in Birmingham, but throughout the whole county of Warwickshire, and he had conducted the business of the Association in such an able manner that they never stood in a better position than they did at that moment. (Hear, hear.)

Mr. CARTWRIGHT, in seconding the proposition, agreed with the remarks of the proposer, that it was of the utmost importance that a Birmingham gentleman should be President of the Association during the ensuing twelve months.

The CHAIRMAN said he was very much obliged to the proposer and seconder of the resolution for the honour they wished to confer upon him; but he thought it would be better if one gentleman did not continue in office as President more than one year.

Mr. CARTWRIGHT: This is an exceptional year.

The CHAIRMAN said he was sure that there were members of the Association more capable of fulfilling the duties than he was. He hoped they would kindly nominate some one else.

Several members considered that the performance of the duties of President could not be in better hands than Mr. Stanley.

The proposition was then put to the meeting by Mr. GRIFFITHS, and carried unanimously.

The PRESIDENT said he thanked them very much for the honour they had conferred upon him in re-electing him President, the duties appertaining to which he would perform to the best of his ability. He hoped the members would rally round him, and give him all the assistance in their power, when the meetings of the National Association were held at Birmingham.

The CHAIRMAN proposed that Mr. Beddard be re-elected Secretary, and Mr. Blakeway Treasurer. Both of those gentlemen had proved themselves efficient officers and he should like their valuable co-operation and assistance during the ensuing year.

Mr. CARTWRIGHT seconded the proposition, which was unanimously adopted.

On the proposition of Mr. BEDDARD, seconded by Mr. TRIGGER, Mr. E. Meek was elected a Vice-President of the Association.

The CHAIRMAN proposed, Mr. WRAGG seconded, and it was unanimously resolved that Mr. Trigger be a Vice-President.

It was resolved, on the proposition of Mr. TRIGGER, seconded by Mr. CARTWRIGHT, that Mr. Parker be a Vice-President.

Mr. MEEK, in returning thanks for the honour conferred upon him, said that anything he could do to further the interests of the Association he should always esteem it a pleasure and a duty. (Hear, hear.)

Mr. TRIGGER also returned thanks, and endorsed the sentiments of Mr. Meek. He had no doubt that, with the example set before him by their able President, he should not go far wrong.

Mr. PARKER also briefly returned thanks.

PATHOLOGICAL AND CLINICAL CHARACTER OF NAVICULAR DISEASE.—BONE SOFTENING AS A CAUSE OF SPONTANEOUS FRACTURE.

Professor WALLEY then read the following remarks on the above subjects:—

Mr. President and Gentlemen,—My reasons for introducing the subjects I have chosen for to-day's discussion to your notice are that I look upon them, first, as of much importance to the veterinary practitioner, and, secondly, because there are certain points in connection with them which I myself am desirous of seeing more clearly elucidated.

In dealing with Navicular Disease there are three things to which I wish particularly to direct attention, viz., its pathology, its clinical characters, and its treatment. As no definite idea can be obtained of the pathology of an affection until we know something of its etiology, I think our time will be well spent if we devote a little of it to the consideration of the supposed causes of the affection. In perusing the written opinions of eminent members of our profession, one cannot but be struck by the fact that we are, in reference to its causation, but little in advance of those who have preceded us. The original idea, I take it, of veterinary pathologists was, that it had its origin in concussion, and then again this idea was combated on the ground that, if it

so originated, the disease should be as common in the hind as in the fore feet, and that as the navicular bone is not a weight-bearing bone, but is, as it were, "slung" in its position and has passing underneath it a non-concussive substance, viz., tendon, it is impossible for concussion to exert any ill effect upon it. Well, gentlemen, after the lapse of so many years, have we, I would ask, improved upon this idea or provided a satisfactory substitute for it? On the whole, I think, the answer may be given in the negative.

I would ask you to consider, notwithstanding the fact that it is not a weight-bearing bone, and that it is, as I have said, "slung" in its position, whether it is impossible for concussion to play a causal part in the production of navicular caries? Personally, I am of opinion that it does, and particularly in horses with mean frogs and hammering action, and which are constantly worked at a fast pace on hard roads or streets; and not only is there greater weight thrown on the fore than there is on the hind feet, but the incidence of concussive force is different in the hind as compared with the fore.

In the former it is transmitted in an almost straight line from the point of the os pedis to the phalanges, while in the latter it is transmitted through the body of the os pedis, in a vertical direction, and the sole of the fore foot, too, is not so concave as the hind and is more liable to suffer from the effects of contusion from loose (rolling) stones or projecting stones; moreover, I have long held the opinion that the anatomical position of the navicular bone is such as to predispose it to grave interference with its intra-osseous circulation. I have already said that it is suspended in its position; we know that its blood is received through the foramina which exist in its non-articulatory surfaces, and in the various movements of the foot I think it is not difficult to conceive that the safety of its vascular apparatus may be materially jeopardized as no assistance can be given to its capillary circulation, when the limb is in constant flexion and extension, by the propulsive force of its arteries; neither can the aspiratory force usually exerted in the venous circulation be brought to bear here. Hence, the bone is altogether placed in a position highly favourable to the production of vascular derangement in its interior, and the treatment to which the class of horses most liable to it are subjected is further calculated to bring about such derangement.

You are all well aware that it occurs most frequently in horses used for fast work and which are liable to be pulled dead up at any moment, while the whole circulation is in a very excited state, and the stimulus to the circulation suddenly withdrawn by allowing them to stand for minutes and it may be hours in a quiescent condition: this system of treatment is seen in its perfection in horses belonging to butchers, in trotting and in cab-horses; and I may also say in those belonging to veterinary surgeons and to men whose time is occupied by driving their horses to the top of their pace, for the sake of effect, and suddenly pulling up every three or four miles for the purpose of refreshing the inner man.

This kind of treatment, I maintain, is pre-eminently calculated to produce the condition we call "Navicular Disease," by causing capillary congestion in the interior of the bone, and in addition, in some cases, capillary hæmorrhage. In either case, the nutrition of the intimate structures is interfered with, and as a result molecular degeneration follows, leading to the caries which is characteristic of the disease. Another cause frequently overlooked is rheumatic ostitis—this plays its part to a much greater extent than is generally supposed.

From the foregoing remarks it will be gathered that I look upon idiopathic Navicular Disease as purely and simply due to interference with the nutrition of the bone itself and as originating within its interior by a disturbance of its capillary circulation; but while I hold this opinion I am also prepared to admit that, in some cases, an inflammation—rheumatic or otherwise—may

originate in the ligamentous structure of the navicular bursa, or in its synovial membrane, and extend thence to the surface of the bone; but such cases are comparatively few, and are easily distinguished by their macroscopical characters.

Navicular Disease, having its origin in injuries, presents totally different characters, both clinically and macroscopically, from those presented in the idiopathic form; and the specimen I introduce to your notice amply shows this divergence from the ordinary conditions.

Now, gentlemen, from this brief discussion of the pathology of Navicular Disease, I think we may gather some explanation of the widely differing clinical characters it sometimes presents, as also some explanation of the divergence of opinions, as to its existence or non-existence in particular cases, which we occasionally see revealed in courts of law.

Given, particularly, a navicular ostitis having its origin in rheumatism, we can easily understand why half a dozen veterinary surgeons may examine a horse on one occasion and half a dozen on another, and respectively arrive at a different conclusion, each half dozen being *pro tem.* in the right; and I would ask you individually, if you have never met with cases in which the clinical characters of the affection were so well marked that you would, if asked, be prepared to forfeit your professional reputation on your diagnosis, but in which on *post-mortem* examination no trace of Navicular Disease could be found? I confess I have been so deceived on two occasions, and that within the past eighteen months, and the cases were so peculiar that I think it quite worth while to give you the details; they are as follows :—

No. 1.—An aged chestnut mare (lady's hack) had been under observation for several years as being, from the symptoms presented, the subject of Navicular Disease, and during the last few months of her existence she was so lame as to render her useless, but on several occasions indications of the existence of rheumatism were presented in the form of metastatic swellings of the fetlocks. The owner, having an objection to neurotomy, desired me to destroy her; this I did, and the result of the *post-mortem* you have in the two pedal bones I here exhibit, each one of which possesses a symmetrical patch of softened and destroyed tissue, while the navicular bones were perfectly healthy, but the ligamentous tissues gave evidence of well-marked rheumatismal lesions.

No. 2.—An aged well-bred horse, used in a butcher's van. Had also been under my observation for lameness in one fore foot for several months, but no specific request was made to me by the owner to treat the case, until the horse became so lame as to render him nearly useless, and in answer to his inquiry as to what should be done, I said "Unnerve him"; but, from the bulging and softening of the structures in the heel, I gave a very unfavourable opinion as to the results of the operation. A short time after this I incidentally looked into the establishment of a brother practitioner when he directed my attention to a horse which had just been brought in so dead lame as to be incapable of further progression and, after examining the foot, he told the owner that there was only one thing that would be of any avail, viz., neurotomy; in this opinion I unhesitatingly concurred. A few days subsequently I found a horse standing in my forge which, after a casual examination, I detected as the one I had seen under the circumstances just mentioned; and the owner, after some conversation, consented to have him unnerved but subsequently altered his mind and the horse was slaughtered. The result you have in this specimen—no trace of navicular or of pedal disease exists.

One form of Navicular Disease often overlooked, and to which attention has been but slightly directed, is the development of exostoses on the supero-posterior border of the bone; frequently, on macroscopical examination of the foot, are these met with; and occupying the position they do, they must necessarily give rise to lameness, more or less marked, and that too of an obscure charac-

ter. Lastly, in connection with this subject, I wish to make a few observations as to the utility of neurotomy and the methods of performing the operation.

I am very strongly of the opinion that treatment in the majority of cases of navicular lameness is not applied until a lesion, more or less incurable, is established, and that if, on the first sign of such affection being in existence, horses were laid off work and radical treatment—as local bleeding, frog-setoning, with or without counter-irritation (firing or blistering) to the coronet—adopted, we should see fewer confirmed cripples than we now do.

As to the operation of neurotomy, I am of opinion that simple section might be had recourse to in the early stages with advantage; but when the disease is pronounced, excision of a portion of the nerve is the only operation which is likely to be of any practical use, and on the score of humanity alone it should be performed more frequently than it now is.

The methods of performing the operation, though numerous in point of detail, are practically the same; but as I felt very much dissatisfied with the ordinary neurotomes I had one made on a somewhat different principle and when properly used I consider it a superior instrument. Moreover, it may be combined with a needle, which answers the treble purpose of tearing through the connective tissue without injuring the nerve or the blood-vessels, of raising the nerve from its bed, and of passing a ligature round it when it is desirable to do so. It can also be used for the purpose of inoculation for Pleuro-pneumonia in cattle or for suturing wounds. One of the great drawbacks to neurotomy is, in my experience, the rapidity with which reunition of the nerve, in many instances, takes place. If a horse so operated upon works for two or three years, he does well; but when he again becomes lame after the lapse of a few months, the practical value of the operation is materially reduced. Statements have been made in days gone by to the effect that the ends of a divided nerve did not under any circumstances reunite. This statement is not correct, as is frequently shown after the performance of neurotomy, and as has been further demonstrated by direct experiment. What the exact method of reunition may be is of little importance; it is sufficient for us to realise the fact that it does take place, and that, too, in many cases, in an unprofitably short space of time (I have here a specimen in which reunition took place in about six months), and in order to obviate this, I have for some time now advised that a ligature should be placed on the nerve both above and below the point of section, so as to compress the neurilemma, and thus prevent what otherwise takes place—herniation and hyperplasy of the nerve fibrillæ, with the inevitable result—reunition.

In connection with the second subject (bone fragility and softening) to which I wish to direct your attention to-day, I may say that it is one of paramount importance, both clinically and pathologically, and as to the true nature of which we are very frequently in the dark.

Within the past few years the matter has particularly attracted the attention of veterinary practitioners in colliery districts, and especially in connection with *spontaneous fractures*. To this class of cases Mr. Woods, of Wigan, was, I think, the first to direct attention. I have in my possession the ossa pedes and portions of the navicular bones of all the feet of a pony, which were given to me by Mr. F. Ball, pupil of Mr. Brown, of Ormskirk, and in which the flexor pedis has in each case been torn from its insertion into the semi-lunar ridge; and with it a portion of the structure of either the pedal or navicular bone. The accident in these cases seems to occur immediately the animals are brought to the pit-head, and the cause, I take it, is that the animals being so suddenly exposed to the influence of light, lose the co-ordinating control of their muscles, the result being that violent traction is brought to bear on the tendons and the bones, being already softened, yield to the force exerted upon them.

Similar conditions are found to exist in India in imported Australian horses (Walers), and many such cases have been related to me by Mr. R. Rutherford ; but here the lesions are usually localised in the sesamoids and the suffragines. In one district two miles distant from Edinburgh such cases also occasionally occur, and several years ago I attended a carriage-horse in whose limbs the development of splents was followed in quick succession by the formation of bone spavin in each hock, and also partial paralysis, from vertebral softening ; ultimately, in endeavouring to raise the horse by the aid of slings, some twelve or fourteen of the ribs were fractured and he was slaughtered. At a subsequent date I received from Mr. C. Cunningham several bones, with the lacerated tendons of the flexor pedis of one of the limbs, which he had removed from the carcase of a pony. This animal was located, during its life, within a very short distance from the carriage-horse before mentioned.

Bone-softening, leading to spontaneous fracture, is of comparatively common occurrence in pregnant mares, and we are all well acquainted with that form of bone-softening in young animals known as Rickets, though, according to one medical writer, we are quite ignorant of the occurrence of such a lesion.

Osteo-malacia may again arise as a result of prolonged and profuse suppuration, and I have here one of the ribs and a part of the femur, of the left leg, which I removed last year from a cow, and in which more than half the ribs had been fractured by simply turning the animal over from side to side, she being incapable of rising, from paralysis primarily, and sloughing of the muscles of the thigh and of the gastrocnemii tendons, followed by profuse suppuration, secondarily. The lesion is, in my opinion, occasionally produced in young cattle by extravasation of blood into the interior of bones when animals are suffering from blood diseases.

In very fat horses, the bones, especially the vertebræ, are sometimes so soft in consistence as to be easily cut with a knife, and the condition is an unsuspected predisposing cause of fracture, especially in animals cast for operations.

The exact nature of that form of bone-softening known as Osteo-porosis is still a mystery, but as in the case of other forms it is doubtless due to one of three causes : (1) Excessive formation of lactic, lithic, or other solvent acid, producing decalcification ; (2) deficiency of bone salts in the food ; (3) inability on the part of the bone cells to assimilate the pabulum offered to them: but why such mal-nutrition should arise I cannot pretend to offer an opinion. One medical writer has recently made the statement that the porous condition of the bones (from the late Professor Varnell's cases) preserved in the museum of the London Veterinary College, was the result of maceration and drying ; but, much as I admire the general tone of this writer's remarks on this subject, I am compelled to dissent from his conclusions on this point, as the softened and porous condition of the bones can, in these cases, be demonstrated during life as well as after death. The lower maxillæ of two goats, here shown, present the condition very markedly, and I had no difficulty in either case of making a correct *ante-mortem* diagnosis. Curiously enough, both the goats from which I obtained the specimens were comparatively young (two years old) and were generously fed, inasmuch as they had the run of large stables, in which the supply of corn was never stinted.

That the cause of fragility or softening of bone is not always to be found in the absence of proper material for its nutrition from the food, is amply proved even by these specimens alone, but I may remark that on one occasion my opinion was asked in reference to spontaneous fracture of both metacarpii and both metatarsii in a gazelle. The little animal in question had been kept in a comfortable house during the winter and generously fed (mainly on oats), and

when released in the spring from its confinement, it made an ineffectual attempt to leap a high wall, with the result that both metacarpal bones gave way, and subsequently, in endeavouring to find its way back to its house by hopping on the hind legs, both metatarsii became fractured also.

Now, gentlemen, how are we to account for some of these forms of bone-softening in adult animals? Are we to look upon them simply as cases of Rickets of maturity, and due to impaired nutrition as the result of improper food supply; or as due to some change in the vital properties of the bone-cells, as the result of purely intrinsic influences; or as being brought about by the existence of some agent in the blood which exercises a decalcifying effect upon the osseous tissues? In some cases one is inclined to think that the condition is allied to that of juvenile Rickets, particularly when we consider that in the case of fracture of such bones desperate attempts at repair are made, leading to the production of numerous callosities in the ribs and other bones, as is so well illustrated in the specimens from the body of the cow to which I have before referred. In the case of very fat animals it may be a secondary result of fatty changes in the internal organs, especially in the liver, or it may be, at least at the outset, of the nature of an infiltration.

But I confess that the nature of these cases occurring in collieries is still a very great puzzle; I have thought sometimes that the softening process might be due to the solvent action of carbonic acid, which must exist in large quantities both in the air and water of some of our coal mines.

Mr. GREAVES said they were all very much indebted to Professor Walley for the very able paper he had just read. The subjects were very interesting, but they were subjects which neither he nor any one else could make much headway in. With regard to the first subject, although the Professor had given them a very lucid description of it, he had not given them any information as to how to arrest the progress or cure the disease. Mr. Walley was certainly much more hopeful in his treatment of it than he (the speaker) was. He had never cured a case of navicular disease in his life. He had read of cases where the animal was a born cripple, and he remembered one case where the foal had to be held up while it suckled the mare for six or eight weeks. He had lately been reading Turner's work on the disease, and he must confess that it was like chopped straw to him. Not one particle of information could he glean from it. In his opinion there was as much knowledge of the disease forty years ago as there was to-day. With reference to softening of the bone he had seen horses split their pastern when on a level road; he could not account for it, but he did not think it was from softening of the bone. The specimens produced by the Professor were very interesting, and would well repay a good deal of consideration. They had in their streets numbers of horses with bent legs. Considering the result of wear and tear, did the Professor think that the locality of those cases was in the coffin-joint?

Mr. CARTWRIGHT said when a case of navicular disease came under his notice he always recommended unnerving, which was sometimes successful. He had a very successful case only a few days previously; he had tried firing, frog-setoning, and blistering, but he had given up all idea of treating the disease successfully. He recommended unnerving if the feet were strong enough.

Mr. GREAVES said he should like to ask the Professor another question. How was it that horses shod on the Charlier principle were found to lose their high action? He had known a few cases where horses were high-steppers and good goers, and they had become low-steppers, bad goers, and lame. The lameness was of a troublesome kind; it was obscure, and they

were not sure whether it was a Splint or the navicular disease. It was, however, a lameness that would ultimately become permanent. He was of opinion that Charlier's shoes were frequently the cause of navicular disease.

Mr. BLAKEWAY said they might fire a horse for navicular disease, but if the animal was predisposed to the disease it was no good. He had found neurotomy in the majority of cases to act very well. As regards fracture of the bone he had not had much experience, but by what he had seen he had been generally led to the conclusion that it arose from a want of animal matter. It was well known to them that lameness came on suddenly, but if horses were kept quiet for awhile, the animal would get well. Only a short time ago he had a case of a horse with a fractured humerus, caused by excessive muscular action. There was no softening of the bone at all—in fact, quite the contrary.

Mr. WRAGG thought that the question brought before them by the Professor was one of fact more than anything else. Those who had had much to do with navicular disease were pretty much of one opinion that neurotomy was the only remedy.

Captain RUSSELL was also of opinion that neurotomy was the only operation for making a horse suffering from navicular disease comparatively sound, but he must say that it was an operation he did not encourage—(hear, hear)—and for this reason. Some time ago a gentleman in his neighbourhood asked him if he would unnerve a horse suffering from navicular disease. In reply to his questions the gentleman told him that as soon as the horse recovered he would decidedly sell him as a sound horse. He (the speaker) looked upon the horse as not worth 5s. He did not remember a case of a horse making a satisfactory recovery from navicular disease. With regard to softening of the bone he was of the same opinion as Mr. Blakeway, and he had had cases where, from the want of animal matter in the bone, it was as brittle as a piece of chalk.

Mr. MEEK considered that the great point was how to prevent a reunion of the nerve taking place. In several operations he had performed he had found a reunion of the nerve. In one instance he performed an operation on a horse belonging to a neighbouring veterinary surgeon, and the horse got well and appeared perfectly sound. In a few weeks, however, it went lame, and he unnerved it a second time; the horse got well again, and again went lame. The operation was performed a third time, and the horse got sound again—(laughter). He remembered on two occasions more than an inch of the nerve was removed. They knew they could not cure navicular disease, but as a man whose horse suffered from the disease once said to him, "If he will only carry me this season I shall be satisfied." Mr. Meek then referred to the case of a mare which had fractured fourteen ribs, six on one side and eight on the other. During the few weeks the mare lived she took very little food or drink, and yet the recuperative process was carried out, as was shown by a very large deposit connecting each of the fractured extremities. He had had a good deal of experience with colliery horses, but it had never been his lot to meet a case such as Professor Walley alluded to.

Mr. TRIGGER fully agreed with Mr. Meek as regards softening of the bone. The Professor seemed to intimate that it occurred more particularly among colliery horses.

Professor WALLEY: No, no; I referred to that as a particular form.

Mr. TRIGGER said he had had fifteen years' experience of colliery horses, and he could not call to mind a single case where softening of the bone had taken place, although there had been innumerable fractures during that period. Many cases of fracture without displacement had come under his observation, and he had known animals perform some extraordinary feats before

displacement had taken place. In one case, about ten miles from Newcastle, a horse, after jumping a fence, appeared rather stiff, and he was led home, which was about one mile from Newcastle, when it was discovered that he had a hopelessly broken back. He had the vertebræ in his surgery, and it showed a complete fracture. Another case was that of a horse which ran straight into a blank wall. The horse got up stiff, and was taken to the stable, where it remained for several days before it died. A more hopeless case of broken back he never saw in his life. As regards the operation of neurotomy, he did not believe that the result justified such a course, and he, therefore, seldom performed it. If the owner of a horse required a surgeon to neurotomise it, it was only for the purpose of getting rid of the animal. (Applause.)

Mr. G. SMITH said he was not aware of colliery horses being subject to fractures. The idea of the air being impregnated with carbon—the system of the animal would have to be impregnated with it before it would affect the bone.

Professor WALLEY said Mr. Wood, of Wigan, was the first to direct attention to that class of cases among colliery horses. The specimens he had were received from Mr. Brown. of Ormskirk. It was not in the pit where the symptoms presented themselves, but as soon as the horse was brought out of the pit.

Mr. TRIGGER had known sound horses point their feet in the most exaggerated manner, and he should like to know why it was so.

Mr. OVER said he had unnerved hunters, but he could not say that he had been successful in a single instance. Perhaps three or four had worked well for a time, but the disease always returned to them.

The CHAIRMAN remarked that, so far as his experience went in the unnerving of horses, he was quite in favour of it. He had known many cases, even hunters, being hunted for seasons after being unnerved, but if they were to do any good they must get at the disease when it had reached the first stage. The reason why they had not so many cases of navicular disease during the last eight or ten years was owing to the india-rubber soles, which, no doubt, were a great relief to horses. He quite agreed with the remarks of Mr. Trigger, that, as a profession, they should refuse to unnerve horses that were likely to be put into the market as soon as they were better, and disposed of as sound animals. (Hear, hear.)

Mr. GREAVES asked the Chairman whether he had used the india-rubber soles that had a considerable projection over the frog.

The CHAIRMAN, in reply, said he did not like them, because, by having the projection, they put a pressure on the navicular bone instead of on to the sole.

Mr. BLUNT said he had even found horses that would not stand the least pressure with the india-rubber soles on them.

Professor WALLEY, in reply to Mr. Greaves, said in his opinion the case of the foal referred to was more likely to be due to Synovitis; it certainly was not navicular disease. With reference to the hereditary tendency, at one time he did believe in it *in toto*, but he now held a modified opinion. He (the Professor) had known some of the best feet he had ever put his hand on become subject to navicular disease. Although the question of bent legs was not the subject before them, yet he was glad that Mr. Greaves had referred to it. When he was a student Professor Pritchard taught that bent legs was due to contraction of the ligaments at the back of the knee, the result of animals trying to ease themselves after hard work. He (the Professor), however, considered that the contraction of the ligaments was a secondary cause, and that bent legs was due to over-exertion (exhaustion) of the extensor muscles. Referring to the Charlier shoe, he said he knew a gentleman in Edinburgh who professed to know more about horses than most veterinary surgeons, and he saw his horses about

the streets of the city without any shoes at all. The natural result was that the action of the horses was considerably diminished, and their feet greatly injured. That gentleman, he considered, ought to have been prosecuted by the Society for the Prevention of Cruelty to Animals. The Charlier shoe, especially when used in the streets, tended to throw the pressure on the softer parts of the feet, and the result was that the horse was afraid to step out, lost his action, and eventually became lame. Alluding to the remarks of Mr. Blakeway, he said he quite agreed with that gentleman as to fractures of the bone being due to the want of animal matter, in confirmation of which he instanced a case which had occurred in his own practice, and the difference between mollities and fragillitas ossium, so far as the quantity of earthy matter was concerned, was very slight; it rather lay in the fact that in the one the trabeculæ and diploe of the cancellated structure were replaced by fatty matter, while in the other there was a deficiency in fat and medulla, and the bones were lighter and less greasy. With reference to neurotomy, he was of opinion that a veterinary surgeon who unnerved a horse for the purpose of making it fit for sale ought to be drummed out of the profession. (Hear, hear.)

Where, however, a man desired his horse unnerved in order to enable him to get more work out of it, he was in favour of the operation of neurotomy being performed, as it was far better to do so than to keep the animal going about the streets suffering the most horrid torture. The Professor here instanced a case related to him by Mr. Stanley, of Leamington, where a horse which was sold at a big price was passed as sound by a veterinary surgeon, but it afterwards turned out that the horse had been unnerved in the hind leg, where such a thing was never expected. He did not look upon pointing of the feet, necessarily, as a sign of navicular disease. He had known several cases in which horses continually pointed their feet, but never went lame; nevertheless, when he saw a horse point his feet he always looked upon it with suspicion. Alluding to fractured vertebræ, Professor Walley said he always regarded the occurrence of convulsions when the vertebræ were moved as one of the best diagnostic signs. He referred to the length of time animals could work when fractures without displacement had taken place, and said it behoved them not to put them to work too soon. In conclusion, the Professor alluded to softening of a bone, and said he quite agreed with the remarks that had been made that fragility was a cause of fracture, but in most cases he believed it to be due to softening. He then drew the attention of the meeting to a remarkable specimen, the property of Mr. Wm. Stanley, of tarsal exostosis, and also to the leg of a horse (operated upon by Mr. S.), which, during life, went sound for three years after neurotomy had been performed. The Professor then resumed his seat amid applause.

Mr. GREAVES proposed that the best thanks of the Association be accorded to Professor Walley for his ably-written paper. (Applause.) The Professor had come all the way from Edinburgh to give them the benefit of his experience; and he was always prepared to travel far and wide in order to serve his profession. (Applause.) He wished they had more gentlemen like the Professor, who was worthy of their most hearty thanks.

Mr. CARTWRIGHT seconded the proposition, which was then put, and carried unanimously.

Professor WALLEY, in acknowledging the compliment, said it was a pleasure to him to come to the meeting of their Association, for he never came to a meeting of that kind without learning something, so that if he had given them anything, the advantage was mutual. He was exceedingly glad to have the opportunity of being present at the Midland Counties Veterinary Association, because he was a native of the Midlands. He should like to

come among them oftener than he did, but he would at all times have the greatest pleasure in doing everything in his power to further the interests of the Association. (Applause.)

Nomination of Candidates for Executive Council.

Mr. GREAVES, in nominating Mr. Blakeway and Professor Walley, said the Association could not do better than select those gentlemen as candidates to serve on the Executive Council—(hear, hear)—and he hoped their candidature would be successful.

Mr. TRIGGER, in seconding the proposition, said he hoped the Honorary Secretary, Mr. Beddard, would do the same as on former occasions, and write to the secretaries of other associations, requesting their co-operation in securing the election of the two gentlemen named.

The proposition was carried unanimously.

Next Place of Meeting.

Captain RUSSELL proposed that the next meeting of the Association be held at Nottingham.

Mr. BLAKEWAY seconded the resolution with very great pleasure. They had some very good and tried friends in that town, and as they had not been in that neighbourhood for a considerable time, he thought they should pay Nottingham a second visit.

In answer to Mr. Cartwright, the CHAIRMAN said the next meeting of the Association would be held in May.

The resolution was then put, and carried unanimously.

A vote of thanks to the Chairman terminated the proceedings.

About twenty of the members subsequently dined together, at which the healths of the Chairman and Professor Walley were duly honoured.

LINCOLNSHIRE VETERINARY MEDICAL SOCIETY.

(*Continued from page* 203.)

The second disease to which I wish particularly to direct your attention to-day is the so-called "Roup," "Croup," "Diphtheria," and "Gregarinosis" of poultry. The terms "Roup" and "Croup" are used very indifferently in the designation of the diseases of poultry; thus, in some districts, the former term is applied to impaction of the crop as well as to the disease we are about to consider, while the latter is applied also to the affection known as "Gapes." "Gregarinosis" was, I believe, first employed by Continental writers, and the disease was first fully described in this country by Dr. Fleming in his "Veterinary Sanitary Science and Police." The designation was so used because the disease was thought to be due to a psorosperm, the *Gregarina* (M. Balbianii); and the organism was described, and has since been described by Megnin, in the following terms: (1) As sporule-like corpuscles grouped in a loose heap or enclosed in a spherical sac (psorosperms); (2) as egg-shaped corpuscles with a resisting envelope, which open at their extremity, and contain granular matter, undergo segmentation, and produce sporule-like sacs of the first form. The term "Diphtheria" has been employed by various writers. In the first course of lectures delivered by me in the Edinburgh Veterinary College, on "Comparative Pathology," I described the disease as "*Diphtheritic Aphtha*," and I did so because it appeared to me to partake partly of the character of the two affections, and partly because on several occasions I detected, microscopically, in the products, fungus forms such as have been described by Kuchenmeister in certain kinds of Stomatitis. Megnin employs this term also, and further

distinguishes between the two forms assumed by the disease, calling one, when the lesions are localised in the mouth and upper air-passages, *the false membranous form;* the other, when metastic nodules (tubercles) develop in the interior of the body, *Tubercular Diphtheria.* A more recent writer on this subject—Emmerich—also designates the disease in pigeons, Diphtheria. By some writers it has been spoken of as *Tuberculosis.* In a certain degree, in its clinical character and metastatic tendencies, and in its etiology, it bears a striking resemblance to that malady; but its lesions differ in this respect, that in tubercle the nodules undergo calcareous and caseous degeneration; such changes never taking place in the nodules of Roup, but, as in the case of all the other infective granulomata, nodes and nodules are produced, which can never become organised tissue, but which, on the contrary, show a marked tendency to undergo retrogressive changes, and in which the component elements are identical, viz., round embryonal cells, giant cells, epithelial cells, and a reticulated structure. The affection was, a few years ago, limited to a few districts in this country, but it is now very widely spread, and is the curse of many a poultry-yard and many a dove-cote, one remarkable fact in connection with it being that it is confined to the gallinaceæ, and, so far as I know, does not attack the palmipedeæ. I myself first became acquainted with the disease in poultry at Liverpool in 1865, and in pigeons at Edinburgh in 1871; since these dates I have had poultry, pigeons, pheasants, and birds affected with the disease sent to me from all parts of the country. Before saying anything about its specific nature, I will briefly refer to its clinical and macroscopical characters. It attacks birds of all ages, but most largely young ones Once introduced into a poultry-yard, a dove-cote, or a cage, it spreads rapidly, and lingers for a long time, and not unfrequently makes a complete clearance. It is highly contagious, and its spread is favoured by damp, by overcrowding, by bad ventilation, by bad feeding, and by bad water. Its effects on the system are parasitical, causing inanition and exhaustion, these conditions being frequently increased by diarrhœa and loss of appetite, and pathological lesions producing important and distinctive tissue changes. Its invasion is local—(1) through the medium of the mouth; (2) through the nostrils; (3) through the conjunctivæ; (4) through the external auditory meatus. In the two latter positions it usually remains local, or only extends slowly and in a very limited degree to adjacent structures; in the two former positions its tendency is to spread rapidly to the alimentary tract, and to the respiratory tract respectively; in both cases its lesions ultimately become systemic. As its manifestations are at the outset localised, so are its effects; but in the long run, as in the case of Tuberculosis, it produces a systemic dyscrasia. Its most pronounced local lesions resemble in some respects those of Croup and Diphtheria combined, being made up of collections of a peculiar yellowish-coloured exudative material, which from being at first small rapidly becomes aggregated into large masses; this material is very cohesive in its character, and is in some cases detached with difficulty from the mucous membrane, and when removed by force frequently leaves behind a bleeding surface. In the mouth and fauces these masses are readily seen, as is also a considerable amount of inflammatory redness, with the secretion of viscid mucus and saliva which clings about the mouth, and gives rise to a good deal of annoyance. In the nostrils, the yellow accretion is seen clinging around the edges, while a large quantity of mucus is in some cases poured out from the Schneiderian membrane, and fills up the nasal cavity, interfering with the passage of air and thus causing the animal to breathe through its mouth and to emit a peculiar sound in its endeavour to get rid of the obstruction.

In the ears it presents the same characters; while on the conjunctivæ it forms hard spherical masses, varying in size from a pin's head to a horse-bean,

In no other way are external lesions *primarily* manifested; but *secondarily* we have them developed under the skin of the solar surface of the foot, in the wattle, occasionally in the comb, and in the skin, particularly the skin covering the sternum; its localisation has been probably determined by the irritation set up by contact with the perch. In the foot, large swellings are sometimes formed which cause much lameness, and undergo tardy softening, but even after softening has taken place, stratified masses of the yellow exudate are found lying within the resulting cavity. In the wattle I have never seen softening, the exudate here being also in the form of stratified masses. In the intestines, the masses are presented in various parts, very largely in the cæci, in the form of prominent nodular elevations of a greyish colour, projecting from the mucous membrane into the cavity of the bowel, and not unfrequently producing total occlusion thereof. In one remarkable case, a game chicken sent to me by Mr. Crowhurst, of Amersham, stratified masses of fibrinous exudate, intermingled with coagula of blood, formed a complete cast of the tube, and bore a striking resemblance to a stratified thrombus, while the adjacent intestinal wall was destroyed by ulceration. In the lungs, the lesions presented are—(1) tubercular nodules; (2) rapid softening and total destruction of the parenchyma; (3) complete substitution of the lung-tissue by a plastic exudate, which forms a complete cast of the lung, none of the tissues of which are left intact, except the bronchial tubes and some of the vessels. In the liver, the primary lesions are nodular, and in most cases this form is retained to the end, the liver structure being ultimately replaced by the new growths. Such extensive invasion was present in the organ of a fowl sent to me by Mr. Leach, of Boston. The mesentery is very largely studded with miliary nodules, some pedunculated, identical in general character with those of Tuberculosis, while similar formations are met with, more or less, in other organs: but the most remarkable of all the lesions are the discrete, flattened, oblong nodules met with in the subcutaneous and inter-muscular connective tissue. This lesion is, indeed, sufficient to differentiate the malady from either of the other two forms of infective granulation which so closely resemble it, viz., Tuberculosis and Actinomycosis.

Like causes, it is said, give like results; and the remark is essentially applicable to the casual relations of the disease just mentioned and the one under consideration, the resemblance being further heightened by the fact that inoculation with the products of this disease have been successfully practised between poultry, pigeons, and rabbits, and by myself, to the sheep; and one authority goes so far as to say that it is mutually transmissible between pigeons, rabbits, and a child, though Megnin says the flesh of affected animals may be eaten with impunity. Trasbot has failed to convey it to the pig or the dog, while one of his pupils placed diphtheritic membrane into his own throat without suffering the slightest ill therefrom.

Well, gentlemen, you will naturally ask, What is the nature of the disease, and from what does it arise? For a long period I have felt certain in my own mind that it had its origin in some form or other of micro-organism, and, as I have already stated, I thought some years ago that I had detected the particular organism. Within the last few years my assistant, Mr. Grey, Demonstrator of Practical Pathology in the "Dick" College, has, at my request, worked energetically at this subject, but not until very recently did his work bear fruit. In the early part of this year a lady sent a favourite canary to me, suffering from what she called a warty growth in its eye. A very superficial examination enabled me to satisfy myself as to the nature of the growth (which was about the size of a large pea, and protruding from the conjunctivæ), and I set to work at once to scoop it out. This I succeeded in doing fairly well, but I could still see a quantity of exudate deep down in

the tissues. I had to satisfy myself by touching the cavity with caustic, and giving a very unfavourable prognosis. I preferred the request that the little creature should be brought back to me in the course of a few days; the request was complied with, but the bird was dead, and I at once handed it over to Mr. Grey. On further investigation, as after careful examination of *débris* of the removed nodule he had failed in detecting anything of a decided nature, and, on dissection, it was found that the growth had extended through the structures into the fauces and into the cranial cavity, and along the brain ; and on microscopical examination of the latter, Mr. Grey detected what he conceived to be a fungus-like growth, but as neither of us felt satisfied about the true nature thereof, the matter was left for further investigation. On perusing Klein's articles in the *Practitioner* (see Klein's "Micro-Organisms and Diseases," page 78-80), on micro-organisms, my eye was attracted by his sketch of the Cladothrix Dichotona, and on comparing its characters with the fungus in the canary's brain, its identity seemed to me to be completely established. In the *Lancet* of the 25th October you will find an article, already alluded to, by Emmerich on the "Diphtheria of Pigeons" wherein he describes the existence in the false membranes of a short, thick, *bacterium*, which he cultivated in gelatine solution. This bacterium is probably identical with the bacteria in the filaments of the fungus in the brain of the canary, and if this is so, it points to the necessity of searching for such organisms in the adjacent or underlying structures, rather than in the new growths of such affections. Another fact which seems to me to go far towards establishing the nature of this disease is, that the cladothrix is found, according to Klein, in pond-water containing decomposing organic matter, and in practice I have sometimes been successful in suppressing the malady by dissolving fungicides in the drinking-water ; moreover, a leptothrix-like organism, called the *Streptothrix Foresterii*, has been discovered by Cohn in the lachrymal canals of man ; and Klein considers this streptothrix morphologically identical with the cladothrix.

Now, assuming that this view of the nature of this disease is a correct view, we have not far to go for an explanation of the ordinary method of invasion, viz., by the mouth—exactly as in the case of Actinomycosis in the ox, and Pustular Stomatitis in the horse—and by the nostrils, the pulmonary invasion being due to inhalation of the spores, the systemic invasion following mainly the intestinal and the pulmonary. Such an assumption is further warranted by the new knowledge which we possess with regard to the infective nature of tubercle and of Actinomycosis, and of the proved possibility of systemic infection by the *aspergillus*. And, I would ask, does not the view I have here taken receive strong confirmation from the success which, as I shall presently show, follows the abortive treatment of this and allied diseases ?

In reference to Equine Pustular Stomatitis, while I have no actual proof of it, I have no hesitation in saying that it, too, is due to a vegetable organism, and not only so, but that many other diseases of a like character, *e.g.*, Aphtha of young cattle, sheep, and lambs, Eczema labiates of sheep, Epizootic Malignant Catarrh of the sheep and the pig, and Epizootic Conjunctivitis of sheep, are also due to fungi. In reference to Epizootic Conjunctivitis in sheep I have sometimes thought that it was due to pollen grains, especially so when it occurs, as it frequently does, at those times when grasses and other flowering plants are in bloom. Malignant Catarrhal Fever, I am well aware, may be produced by long exposure to an impure atmosphere—a cause frequently in operation to produce it in animals confined in badly-ventilated holds of ships, and in dogs and pigs from insanitary kennels and styes ; but in the case of hill sheep no such cause can possibly be in operation, and I feel quite sure, from the cause and results of the disease, that it

has its origin in one form or other of vegetable organism. Eczema of the lips of the sheep is, I know, usually attributed to the irritation of sand and gravel; but I fail to see that such irritation could alone produce the important results we so largely witness in this affection, and I think the idea that it is due to an organism is supported by the fact, that Eczema of the face and legs is sometimes produced in both horses and cattle from the irritation of the pollen grain of alsike clover.

Simple Indigestion does not, in my opinion, account satisfactorily for the great number of cases we sometimes meet with of Aphthous Stomatitis in young cattle and sheep. Some time ago Professor Axe placed on record an outbreak of Aphtha in sheep, which he believed to be due to various kinds of insects infesting the green food upon which the animals were foddered. I should be more inclined to attribute such cases to the effects of fungi.

In reference to the abortive treatment of such affections as those we have been considering, I may remark that while such treatment can only be effectively carried out in the case of those diseases where primary invasion is external and local, we can by intelligent application of general and local remedies materially modify the course of such important maladies even as Foot-and-Mouth Disease. From my experience in the treatment of the maladies to which I have directed your attention, I am in a position to say that their progress can be arrested as certainly and as effectually as can that of Specific Urethritis (Gonorrhœa) in the ox and the dog.

The Professor was heartily applauded on resuming his seat.

The PROFESSOR afterwards added a few words in reference to treatment. In the case of Pustular Stomatitis in the horse, he recommended hyposulphite of soda and chlorate of potash, both of which had a good effect. If there was the slightest debility, he gave also iron. He might also give a simple laxative—sulphate of magnesia, or a little oil, or a small dose of aloes. The food should be nutritious, but of a sloppy character. For local application he suggested a simple application of borax, alum, carbolic acid, and glycerine. A solution of these freely applied to the mouth would at once arrest the disease. In reference to poultry, he specially recommended carbolic acid: a feather dipped in a strong solution of it might be swept round the whole of the buccal cavity, also the fauces of the bird, without doing harm. Perhaps they would think this a heroic remedy, considering that carbolic acid was poison; but it was a fact that a strong application of carbolic acid could be used with much greater freedom than a diluted one. In applying it in this way to the mouth, they would first of all have the bird looking a little sick from pain; then there would be some salivation, but that would be the end of it—the bird would afterwards be as lively as before. When the nose was affected, one of the best things to do was to place the thumb or a finger in the mouth, and by pressing upon the palate to force out as much mucus as possible; then to syringe the nose out with a milder solution of carbolic acid, or carbolic acid and iodine. By following out this treatment he had been very successful; and he mentioned the case of a bird at Dumfries which recovered after this treatment, was afterwards sold for twenty guineas, and won several prizes. As to measures of prevention, in the case of poultry he would have the grass top-dressed with quicklime—thoroughly done—and the houses either burnt down, or the birds at least removed to a fresh place, and the houses thoroughly disinfected. Further than that, he would give hyposulphite of soda, and, if they liked, iron in their water. He might say, however, that he believed the disease might be carried about by eggs, and might even be propagated by chickens. The same lady who sent him the canary bought a setting of eggs from a place where the disease was rampant; the eggs were from hens of Spanish breed. There had been no disease about the place

before, and every bird appeared perfectly healthy until the chickens grew up. When they were about two or three months old they all died, and ther birds also took the disease.

The CHAIRMAN said he was sure they all heartily thanked Professor Walley for the interesting paper he had read. He was quite certain, in his own case, that he had learnt a good deal, and he hoped many others had done the same. It was a subject which they, as provincial veterinary surgeons, could not thoroughly look into, because they had not the time to follow such questions out. Still he felt certain, for his own part, that all these cases were really due to some fungus growth, and he had always had an idea that it might be fungus on the corn—that owing to the dampness of the corn there might be a fungus growth. A case had come under his own notice in which there was no suppuration of the glands, simply eruption of the mouth; and he entirely attributed it to a fungus growth on the oats which the animal had eaten.

Mr. GREAVES was sure they had listened with great pleasure to the able paper which was now before them, leading their minds into the consideration of various types of disease that many of them had never seen, and probably never heard of before. He was himself a stranger to diseases of fowls. He had never had a patient in a fowl in his life; therefore he could not follow the Professor in this part of his subject. With regard to horses, he could scarcely understand the disease that he particularly referred to. The Professor had used terms that were not used when he (the speaker) was at college in 1839. He was now one of the ancient veterinary surgeons, and many new names had been brought into existence since he was a pupil at college. There were some diseases that resembled the disease the Professor had spoken of; for instance, Pyæmia might produce something not unlike what he had been speaking of. In Maligant Sore Throats they would often find abscesses formed between the jaws, and extending round to the front of the face in various parts, with extensive sloughing. Probably if the Professor were to see such cases he would be able to explain whether they were or were not allied to the disease of which he had been speaking. He had listened with great pleasure to his remarks, and he hoped they would have a good discussion on the points which he had raised.

Professor WALLEY said the cases to which he had referred occurred about the time the examinations were going on, and he had a talk with Dr. Fleming about them. He said that it was simply Horse-Pox; but as he (Prof. Walley) had said in his paper, if it was Horse-Pox, it was a remarkable thing that they got no lesions outside the mouth, or extending from the mouth. He had never yet seen Horse-Pox without lesions about the body. In the cases he had described there was not a single eruption outside the mouth. Therefore he said that it was a purely local disorder, due to local causes.

Captain RUSSELL said his experience of Pustular Stomatitis in horses was *nil*, but in reference to the disease of Gregarinosis in poultry he had witnessed three or four outbreaks. There was a specimen lying on the table, which exactly carried out the description Professor Walley had given them. The appearances of the disease, as detailed by the Professor, were in this case most marked; so much so, that as he mentioned them he (Captain Russell) kept noting down in his mind, "That existed—that existed." He might mention that the livers of the birds weighed six, eight, and ten ounces each, and seemed to fill up the whole capacity of the abdominal cavity. He was rather under the impression that Actinomycosis was an allied disease. He thought they would find that if only they could treat these cases in time, in a great majority of instances they would recover. He had at the present time three cases under treatment, and he could safely say they were all

recovering. In a country practice these cases were not brought before their notice very often until the incursion of the disease had gone on for some time, and then it was a more difficult task to get them round again. These outbreaks amongst poultry were all due to the same causes Professor Walley had spoken of—bad feeding, dirty houses, and particularly overcrowding.

Mr. RUNCIMAN expressed the opinion that Tuberculosis was not contagious.

The CHAIRMAN held a contrary opinion.

Mr. GRESSWELL said he had had a case of a calf suffering from Tuberculosis, and he wished to treat with iodoform, but the owner preferred to sell the animal. He thought that iodoform would be very useful in cases of diseases of the tongue. He did not think it was as contagious as some people supposed. They might prevent the spread of the disease by using lime in the water of the trough from which the animals drank.

Captain RUSSELL mentioned the case of a beast suffering from Actinomycosis, which he treated with iodoform, and it recovered.

Mr. HARDY asked if any one had seen a case in sheep. He had inquired of Professor Walley, but he did not know of one. He (the speaker) had one amongst some rams, about two years ago, on a heath farm ; and that was the only case he had ever heard of. He put it under treatment, and it recovered.

Mr. WHITWORTH stated that about three weeks ago he had a very marked case of Stomatitis Pustulosa under his care; and he was inclined to be of opinion that the eruption extended over the fauces and along the alimentary canal. The duration of the disease was about a fortnight. After four days, occasional symptoms of Colic manifested themselves—not particularly acute —and he administered the ordinary remedies. Two days afterwards there were further symptoms of Colic much more aggravated. From the bowels were passed quantities of mucus, and about the tenth day a large ball of mucus was ejected, streaked with blood. Ultimately, the animal recovered. As to Stomatitis being infectious, he had had two or three cases within the last few months. One he was inclined to attribute to the eating of mouldy seeds. The animal was between two others, all in tolerably good health. The one in the middle was fed upon these seeds, the others were not. Neither of the other two took the disease. It was a perfectly well-marked case. One or two spots of eruption appeared on the outside of the lips. As to Gregarinosis in fowls, he had seen a good deal of it at one time or another. In the latest outbreak which had come under his notice, the fowls had recourse to a river where the water was constantly stagnant, and into which sewage matter passed. The paddock was also badly drained. He had the fowls removed to higher ground ; tonics were given, and the disease rapidly disappeared. When the disease was advanced, he believed the chances of recovery very remote.

Mr. SPENCER asked if the so-called "Pip" in chickens—a kind of horny production at the end of the tongue—had anything to do with this disease in poultry.

Professor WALLEY scarcely thought so.

Mr. RUNCIMAN expressed his belief that Stomatitis in calves might arise from their feeding largely upon artificial food.

Professor WALLEY, referring to iodoform, said it was now being spoken of as if it were the great cure-all for everything. His experience of it was not so favourable. If they wanted anything of the kind, they could get nothing better than iodine. Nothing could succeed better than a strong tincture of iodine and carbolic acid. This mixture he had recommended Mr. Leach to use in cases of Actinomycosis, and that gentleman informed him that he had done so with perfect success.

After some further observations,

The CHAIRMAN proposed a cordial vote of thanks to Professor Walley for his paper, which was seconded by Mr. HARDY, and heartily carried.

Professor WALLEY briefly replied, and asked to be made acquainted with any cases of Actinomycosis which might come before the notice of the members.

A vote of thanks to the retiring President, Mr. Mackinder, was proposed by Captain RUSSELL, and, having been acknowledged, the meeting terminated.

The annual dinner of the Society was served on Tuesday afternoon at the Angel Hotel, an excellent repast being placed on the tables by Mr. Childs. Mr. Mackinder, the retiring President occupied the chair; the duties of "Vice" were ably discharged by Mr. Hardy, the newly-elected President of the Society.

After dinner the CHAIRMAN gave the loyal toasts.

Mr. GREAVES, in felicitous terms, proposed the health of Professor Walley, who had come amongst them with that good heart and good feeling which characterised him wherever he went, and whatever he did. He had met him in all parts of the country; and wherever there was a veterinary medical association they would hear of Professor Walley being amongst them. He went for no purpose of his own—he had no selfish motives; but simply desired to benefit the profession. He was sure they would all feel that a deep debt of gratitude was due to him for the able paper which he had read to them that day. (Applause.)

The toast was drunk with musical honours.

Professor WALLEY, in responding, assured them of the very great pleasure which he experienced in attending meetings of this character, and in supporting the interests of the profession in every possible way. Subsequently he proposed the toast of "Prosperity to the Society," and remarked that although nearly the youngest association, yet, from what he had seen that day, he was quite satisfied that although one of the last it was not one of the least—(applause)—neither was it one of the least vigorous. If he had the pleasure of coming amongst them again in the course of a few years he hoped to find that they had made still greater strides. He should always be pleased to assist them, when the opportunity occurred, in maintaining their Society in a state of vigorous health. With the toast the Professor coupled the name of Captain Russell, whom he had met at several association meetings, and who always seemed anxious to do all he possibly could to further the interests of the profession. (Cheers.)

This toast was also received with musical honours.

Captain RUSSELL, in acknowledging the honour which had been done him, said he wished to see the profession take its proper place in the world, and he was also anxious that friendly feelings should exist between himself and every other member of the profession. He was glad if he had been at all instrumental in helping forward the Association; and they might depend upon it that so long as he remained in Lincolnshire, which would probably be to the end of his life, it would be his great aim to make the Society a success. (Applause)

The VICE-CHAIRMAN next proposed the health of the retiring President, Mr. Mackinder; the toast being received with enthusiasm.

Mr. MACKINDER made an appropriate response.

The proceedings were of an enjoyable and harmonious character throughout, and agreeably terminated a successful anniversary.

CHARLES HARTLEY, *Hon. Sec.*

THE SCOTTISH METROPOLITAN VETERINARY MEDICAL SOCIETY.

THE annual meeting and dinner of this Society were held in the London Hotel, Edinburgh, on Wednesday, February 25th. Professor Walley, the retiring President, occupied the chair until the minutes of the last meeting were read and confirmed; he then vacated it in favour of Professor Williams, the President for the ensuing year.

Amongst those present were:—Professors Baird and McAlpine, Dr. Hunter, Dr. Woodhead, Messrs. Rutherford, Cameron, Borthwick, Stewart, A. Baird, A. Grey, W. O. Williams, Cunningham, Aitken, jun., Cassels, W. Connochie, J. Connochie, Burnett, Constable, Hutton, McArthur, Chambers, Rimmer, Duckworth, Shepherd, Moore, Jackson, Robinson, Porch, and the Secretary.

On taking the chair, Professor WILLIAMS thanked the Society for the honour they had done him in electing him President. He hoped the Society would continue to prosper, and should be glad to do all in his power to advance its interests.

The Secretary submitted his report, showing that there was a balance of £26 3s. 5½d. to the credit of the Society; and that there were forty-nine ordinary and three honorary members on the roll. He also read a letter from the National Veterinary Association, stating that the National Association contemplated holding its annual meeting in Scotland next year; but as there were only nine or ten of its members in Scotland, it was requested that the Scottish veterinary surgeons should consider the matter with the view of securing a sufficient number of members to form a local committee to manage the meeting. Ultimately, Mr. RUTHERFORD proposed that the Secretary be instructed to communicate with the other associations in Scotland, asking them to co-operate with the Metropolitan Society in bringing the objects of the National Association under the notice of Scottish veterinary surgeons, and the benefit likely to flow therefrom. Being seconded by Professor WILLIAMS, Mr. Rutherford's proposal, after being supported by Principal WALLEY, was unanimously carried. On the suggestion of the Secretary, a number of those present, who had not previously become members of the National Association, enrolled their names.

Principal WILLIAMS then delivered his

Inaugural Address.

It is now universally conceded that no profession has made greater progress during the last decade than our own, and that the results of this advancement have been of very great benefit to the community, as witnessed by the almost total disappearance of those contagious diseases so destructive to flocks and herds of sheep and cattle, and the lessened bills of mortality amongst our studs of horses.

Diseases that within the memory of the majority of us committed great havoc amongst horses are now treated successfully—the death-rate reduced to a minimum; and, by better sanitation and hygiene, their visitations are much less frequent. These happy results are solely due to the scientific advancement made by veterinarians in the knowledge of their profession—to a more enlightened physiology and a profounder pathology now grasped and comprehended by its members. It is very true that up to within the last two years contagious diseases continued to rage in our midst, and many began to think that legislative measures for their suppression were worse than useless; and had veterinary surgeons, with few exceptions, not resisted this opinion, it is possible that the present legislation for their suppression might have been abolished, and then we should have had agricultural depression indeed. Consider for a moment, gentlemen, the most wretched

condition this country would have been in if, in addition to the present causes of depression, flock-owners and agriculturists had had to contend with Pleuro, or even Foot-and-mouth Disease. It is, therefore, a matter of sincere congratulation that veterinarians have done their duty by the public, and that often against their own pecuniary interest.

Now that Pleuro-pneumonia is likely to become, in this country at least, one of the diseases of the past, it is satisfactory to know that the organism to which it is due has been discovered in the exudates of the disease within, and cultivated in proper fluids outside, the animal body. This result is due to the excellent arrangements of the pathological laboratory of our university, and to the careful attention of Dr. Woodhead, who, with ourselves, has been deeply interested in this matter. The organism of Pleuro-pneumonia is a micrococcus, and found in the exudations present in the lung tissue, as well as in the yellow exudations around inoculated spots. Whilst Scotland and England are almost free from the contagious Lung Disease, there is sufficient evidence to prove that it still remains in Ireland, and that it is due to this fact only that we are not entirely free from it in Scotland, almost every outbreak that we have had to contend against within the last two years being clearly traceable to Irish cattle. This evidently points out something wrong in the inspection of cattle in Ireland, and we have it on the word of Professor M'Call that many inspectors there are non-qualified men. It sometimes, but very rarely, happens that non-qualified men are appointed in Britain, and sometimes in districts where veterinary surgeons are sufficiently numerous. This is much to be regretted, and should at once be remedied.

There is one circumstance in connection with the continuance and spread of Pleuro-pneumonia which should be more generally known, namely, its diffusion by cattle which have recovered from slight attacks of the disease ; and I am sure most of you who have had experience of Pleuro will recognise what I now bring before your notice, namely, that when the disease exists in a herd some animals are so slightly attacked as to escape notice altogether, or to present slight symptoms of illness for a day or two only ; these animals are often quite recovered before the next visit of the inspector, and his attention is never drawn to them. Again, in those instances where it has been arranged to have the whole herd slaughtered, it will often be found that many cattle which had presented no symptoms of illness during life are more or less affected with patches of lung consolidation ; in some the consolidations are in the chronic, in others in the earlier, stages of the disease ; very often deeply seated in the lung substance, and so small as to be undetectable during life.

The exudations of Pleuro-pneumonia, unlike those of ordinary exudations, manifest no disposition to become absorbable, but are apt to undergo a semi-caseous change, and to remain in the lungs during the animal's lifetime. Now, gentlemen, these, in my opinion, are the great sources of danger; for at the expiration of the statutory period of fifty-six days after the slaughter or death of the last recognisable case of the disease, these animals are allowed to be taken to market, and to travel to all parts of the country. Now, I am strongly of opinion that no animal which has been in contact with affected cattle should be removed unless for slaughter, as I am fully convinced that the contagion will remain in an animal, no matter how slightly it may have been attacked, for an indefinite, but long, period—months, perhaps years.

I had hoped that we might have been able to congratulate the country on the absence of the Foot-and-mouth Disease, but I am sorry to say that within the last fortnight it has been allowed to gain entrance to our shore, both at Deptford and Hartlepool. In the face of the last regulations regarding the importation of foreign animals, this points out to some great neglect

on the part of the authorities here, and is to be much regretted ; it, however, dispels the idea held by some, and to which I had to refer some time ago, that the disease is of native origin.

Whilst we have, I think, successfully overcome the terrors of Pleuro-pneumonia, I am sorry to confess that Distemper in the dog still remains a very fatal affection, many valuable young dogs dying every year, and that in spite of the most modern system of treatment. By modern system, I mean that which avoids inflicting torture and the administration of drastic remedies, and the starvation, notwithstanding their universally fatal results, still pursued even by a few members of the profession. I am of opinion that a special study of this disease, with a view of devising preventive measures, will open a new field of experimental medicine ; and having this object in view, I am now making cultivations from various fluids obtained from dogs suffering from this disease, and hope in a short time to give some definite results.

During the past year our literature has been added to by the publication of a work on anatomy by Professor M'Fadyean, a book which does great credit to the author, proving not only his untiring industry, but also high talent ; also a work on equine pathology by the Messrs. Gresswell, which is well worth the perusal of veterinarians.

During the last few months a disease has been witnessed amongst horses, both in England and Scotland, resembling what is known in India as the Loodianah Disease, one of the forms of Anthrax, and attributed to "locality," "emanations from the soil," impure water, heat of weather, etc. Now, gentlemen, I consider that those cases of it seen in this country are most interesting, and that they throw light upon the manner a cause of disease may be conveyed from one country to another very far apart.

All the cases of the disease witnessed in Liverpool, in March last, by myself, and by Professor M'Call in Glasgow and neighbourhood, had been fed on what is termed "Indian mutters" (a sample of which I now hand round), a species of the pea family, imported into Glasgow as ballast in ships from Indian ports, and used as food for horses. The symptoms were those of great muscular debility, roaring, hæmorrhage from the nostrils, terminating in some cases in sudden death. Others, however, continued to live for several months, but were incurable roarers, and had to be destroyed.

On a *post-mortem* examination of the acute cases, exudations of yellow-coloured lymph, with extravasation of blood into the muscles of the larynx lung tissue, kidneys, sub-lumbar fat, etc., were found.

Microscopically examined, the exudates and extravasates were found to abound in bacilli. On making cultivations it was found that the same organisms could be obtained from the dust with which the Indian mutters were covered, and particularly from the dried excreta of some rodent—probably a rat—which was present in some quantity. I look upon this discovery as an important one, as Loodianah Disease, as occurring in India, may yet be traced to tainted food. That these organisms were the cause of the disease is, I think, beyond doubt ; and that they were in the dust and excreta, and not in the peas, is also beyond doubt ; for I failed to cultivate them, although very numerous experiments were made from the peas themselves, after they were thoroughly washed and cleansed from all impurities. This conclusion is supported by a fact that occurred recently in Edinburgh, where, acting on the advice of Mr. Rutherford, parties who were using this food had it well boiled before giving it to the horses ; no bad results followed. Now, if the deleterious agent were some alkaloid or other poisonous material contained in the grain, similar to that of the *Lathyrus sativa*, mere cooking would not have destroyed it, although it was quite sufficient to destroy the organisms.

Having now briefly referred to matters which may be looked upon as satisfactory and beneficial to our body generally, I have to say a few words upon others having a converse aspect.

In the first place, an attempt has been made, and which seems to me, if not resisted, to be calculated to destroy the individuality and independence of the profession, by converting its members into mere dispensers of medicines and disposers of empirical remedies, and that attempt has been made by no less a body than the Royal Agricultural Society of England, aided and abetted by Professor Brown, who, you are aware, is the chief Veterinary Inspector to the Privy Council, and Professor of Cattle Pathology at the Royal Veterinary College, London. Professor Brown, I may state, has issued a pamphlet—under the patronage of the Agricultural Society—containing all directions by which farmers and others can doctor their own horses and cattle ; and he and the Society have done more than that. They have appointed veterinary surgeons, in almost every county in England and Wales, to have the extreme privilege of compounding and selling the medicines prescribed by Professor Brown. Now, gentlemen, I have hitherto been under the impression that the value of a veterinary surgeon consisted in his diagnostic skill, and in his ability to treat his cases in accordance with a correct diagnosis ; but in this scheme diagnosis goes for nothing, and the veterinarian is simply reduced to the dispensing chemist—nay, indeed, to the seller of quack nostrums ; for I cannot look upon any prescription, unless given after the examination of the patient, otherwise than a quack one.

Even if the pamphlet itself were not calculated to injure our profession, by taking the bread out of their mouths, the conferring of what the society supposes to be a privilege to some one man in each county is a gross injustice to others, and is the means of preventing personal enterprise. I am sorry to see the names of many well-known veterinarians amongst those who have accepted these posts of dispensers of drugs for the society and Professor Brown. Some of these gentlemen, I am sorry to say, are members of Council, some Examiners, but chief among them we have the Royal Veterinary College, London, appointed to act for the Metropolis and Middlesex.

If the pamphlet and the appointments are to be deplored, the apologies advanced in support of them are more deplorable still. At the last meeting of the Council, where this subject was brought under discussion, we had the privilege of listening to Professor Axe; and, gentlemen, ponder a moment over what he said: "They—the profession—were endeavouring to put a stumbling-block in the way of education, so far as the agriculturist was concerned ; but it did not occur to them that the agriculturist might just as well complain of the instruction given in the agricultural journals to the many veterinary surgeons pursuing the occupation of farming."

I have, in the next place, to refer to what you are all more or less aware of, viz., that within the last three years a great change has come over the opinion of some of the profession as to the relative values of a scientific or a practical training of our students. Whilst I hold that it is impossible for any one to be too well acquainted with the practical details of his profession—and agreeing, as I do, that many men have gone forth into the world with the diploma of the profession without possessing the necessary practical knowledge—I will not admit that the veterinary is worse off than any other profession, even in this respect ; and if we look around us, and see how many have succeeded in practice—nay, indeed, are now successful—we shall be forced to conclude that this cry for practical perfection has no legitimate foundation.

The time has been when our students obtained credit at their examinations when teachers were complimented by professors at universities—men of

world-wide reputation, who then acted as Examiners—upon the great excellence of the knowledge possessed by the candidates who had been before them. All this is altered now ; a credit mark is scarcely ever obtained at the final, or C, examination, and the great majority of men are absolutely rejected. I need not tell you that dissatisfaction has been expressed at this, and some correspondence has taken place in our periodicals. Fault has been found with some of the schools for speaking out their minds upon the matter. I need not dwell upon this. The schools, so far as I am aware, simply desire that the well-known rule and modern practice in the examinations of students of the medical and other professions be carried out—namely, that the Examining Board should have a mode of dealing with the examinations which will enable the schools to teach up to a fixed standard, and admit or reject according to a fixed percentage of marks, and not by the fads (the term is not my own) or caprices which are common even among experienced practitioners, and which students cannot be expected, and are not taught, to become familiar with.

In a leader in the January number of the VETERINARY JOURNAL, Dr. Fleming, while expressing a very laudable desire to elevate the profession, instead of arguing the question so as the public or the profession might have an opportunity of judging for themselves, simply takes to scolding the teachers and others who have the audacity to differ from him.* This mode of dealing with the question will neither satisfy nor elevate the profession ; the party or parties who are to decide must be in a position to take a dispassionate view of both sides of the questions recently raised—to the best mode of teaching the students to a certain standard of required proficiency, and fixing the standard of percentage for admission on an admitted and known principle, and not on exceptional opinions, however honestly held by individual Examiners.

With the view of altering the present state of matters, and having in view the great pressure of the work of the Examiners—a pressure which is increasing every year—the Principals of the four veterinary colleges agreed that the Examining Board should be strengthened by an addition to its number of at least four Examiners to act upon the final, or C, examination. This resolution was brought forward at a meeting of Council in October last, and carried by a large majority. It was proposed by Professor M'Call, and seconded by Professor Robertson ; but, unfortunately, owing to a slight informality, the question had to be reopened at the meeting of Council last month (January), and was defeated by a large majority; Professor Robertson, who had seconded it in October, and had all along expressed his strong approval of it, not only speaking, but voting against the motion, and in a most patronising manner saying he had supported it at the previous meeting in deference to the opinions of his friends from the North. Most probably Mr. Robertson has some cogent reasons for stultifying himself. To me, however, his conduct seems incomprehensible. In conclusion, I have just to notice that the questions referred to in the foregoing remarks, as well as others of considerable importance, have been discussed—mostly by anonymous writers—in the pages of the VETERINARY JOURNAL ; but in such terms and temper which put an end to any good results. For when parties arrogate to themselves a superiority of judgment which refuses to recognise their own defects, or the other side of a question, and resort to a bellicose and spasmodic style of composition that results in personalities, it is better to pass them unnoticed than to descend into an intemperate arena from which no good can come forth ; for neither the profession nor the public can be benefited by

* This statement is not correct. Dr. Fleming did not write the leader in the January Number of the JOURNAL, as any one may see by referring to pages 29 and 31.—ED. V.J.

the tactics of such parties, notwithstanding their oft-repeated assertions and pretensions.

Professor Williams exhibited a number of cultivations of the micrococcus of Pleuro-pneumonia prepared by Dr. Woodhead.

Principal WALLEY endorsed what had been said by the Chairman, both as regards the progress of the veterinary profession and the examination of students. He was very much disappointed with the direction matters had taken professionally in the sister-country of late. He earnestly hoped that before other twelve months had passed, better feeling would exist between them and their English brethren, and that they be found working together in perfect harmony (applause).

At the dinner, which immediately followed the business meeting, Professor Williams presided.

The usual loyal and patriotic toasts having been duly honoured, Mr. CUNNINGHAM proposed "The Royal College of Veterinary Surgeons," and, in a lengthened speech, referred to the conduct of their English brethren, stating that, though none had a greater respect and admiration for that institution at one time than he, still, as at present constituted, he could not say he admired it. He alluded to the meagre representation of Scotland on the Council and Examining Board, and said they would never get things placed on a proper footing till they had a new and popular system of election (applause).

The CHAIRMAN, in replying to the toast, impressed upon them the importance of ascertaining the views of candidates for the Council, and of electing only those who were sound on those matters which closely affected the welfare of the profession; for at present the Council was under the influence of two or three men. He trusted the Examining Board would soon be largely recruited by men from the North, and that great satisfaction would be afforded the sons of Scotland, so many of whom were annually examined under that Board (applause).

Dr. WOODHEAD proposed "The Scottish Metropolitan Veterinary Medical Society," which was responded to by the CHAIRMAN, who referred to the influence of such societies upon the progress and welfare of the profession.

The toasts which followed, included "Kindred Societies," "The Retiring President," "Highland and Agricultural Society," "The Secretary," and "The Visitors."

T. H. LEWIS, *Hon. Secretary.*

Obituary.

THE death is reported of W. Phelan, M.R.C.V.S., Clogheen, Ireland, who graduated in 1876.

The Dean of the Royal Veterinary Institute of Vienna, and, perhaps, the oldest member of the profession, Dr. Veith, has recently died at the venerable age of ninety-seven years. A very distinguished veterinarian in his day, and a voluminous writer, he will be best known by his "Handbuch der Gerichtlichen Thierarzneikunde," and for his edition of Emanuel's "Handbuch der Veterinarkunde." He retired from teaching in 1855.

Army Veterinary Department.

Gazette, March 10th.

Inspecting Veterinary Surgeon W. B. Walters to have the local rank of Principal Veterinary Surgeon whilst employed as Principal Veterinary Surgeon in Egypt. Dated February 19th.

Gazette, March 17th.

The following Veterinary Surgeons on probation to be Veterinary Surgeons:—T. Marriott, H. A. Fullam, H. T. Pease, C. H. Betser, G. H. Evans, E. R. C. Butler.

Veterinary Surgeons Marriott, Fowler, Butler, Evans (G. H.), Fullam, and Pease have embarked for a tour of service in India.

The following additional veterinary officers have embarked for service in the Soudan:—Baldock, Taylor, Gladstone, Gillard, and Haslam. At the battle of Hasheen, fought near Suakin, on March 20, Mr. Baldock, who was preventing riderless horses from reaching the enemy, narrowly escaped being speared by a party of Arabs, who rushed at him.

Veterinary Surgeon Matthews has returned from India, and is posted to the Royal Horse Guards (Blues), in place of M. J. Harpley, retired.

Veterinary Surgeons Short and Twiss have arrived in England from India, on sick leave.

At the Levée held at St. James's Palace on March 2nd, First Class Veterinary Surgeons Rostron, 2nd Life Guards, and Walker, 1st Life Guards, were presented by Viscount Templetown, K.C.B.; and at the Levée held on March 14th, Inspecting Veterinary Surgeon Gudgin and First Class Veterinary Surgeon Cheesman were presented by the Adjutant-General.

Notes and News.

COMMUNICATION OF TUBERCULOSIS BY VACCINATION.—Since Jenner's discovery, the question of the transmissibility of Tuberculosis by vaccine lymph has been much discussed, and differently interpreted. The researches of Villemin and Koch, which have furnished good reason for believing that Tuberculosis is virulent, render the question still more important. In 1881, M. Toussaint, in a note communicated to the Académie des Sciences, stated that he vaccinated a phthisical cow from a healthy child; he afterwards inoculated a pig and a rabbit from the vaccine pustules of the phthisical cow, and both animals were attacked with Tuberculosis. Koch's bacillus was not found in the lymph. M. Strauss has repeated these experiments. In the space of eighteen months, five phthisical patients were revaccinated. Ehrlich's process failed to reveal bacilli in the vaccine lymph of these patients. Inoculations from the vaccine lymph of phthisical patients were effected in the anterior chamber of the eye of rabbits, but they remained exempt from Tuberculosis; a few days after the operation, the eyes were completely normal. The necropsy was made a few days subsequently, but there was not the slightest indication of Tuberculosis. M. Josseren, a pupil of M. Chauveau, made the same experiments as those of M. Strauss; they were equally negative in result, and indicate that Tuberculosis is not transmissible; thus, twenty-four facts oppose one furnished by M. Toussaint.

FOWL-DIPHTHERIA.—Fowl-diphtheria, a disease which has been studied in Germany by Dr. Klebs, has been prevalent this winter in Cairo. It is characterised by copious patches of membrane in the mouth and throat, swelling and ulceration of the neck, and inflammation of the intestines, with abscesses round the anus. Dr. Brugsch has been studying the disease microscopically, and by cultivation-experiments at the Khedivial laboratory, which he has fitted up with the cultivation-apparatus which is used in Dr. Koch's laboratory. He has found in the membrane, and in the œsophagus, a bacillus resembling that found by Dr. Loeffler in the diphtheria of pigeons; but he has not yet found it in the other organs, nor has he succeeded in inoculating other animals with it.

MEDICINE AS PRACTISED BY ANIMALS.—Mr. G. Delaunay, in a recent communication to the Biological Society, observed that medicine, as practised by animals, is thoroughly empirical; but the same may be said of that practised by inferior human races, or, in other words, by the majority of the human species. Animals instinctively choose such food as is best suited to them. A large number wash themselves and bathe, as elephants, stags, birds, and ants. In fact, man may take a lesson in hygiene from the lower animals. Animals get rid of their parasites by using dust, mud, clay, etc. Those suffering from fever restrict their diet, keep quiet, seek dark and airy places, drink water, and sometimes plunge into it. When a dog has lost its appetite it eats that species of grass known as dog's grass (*chien dent*), which acts as emetic and purgative. Cats also eat grass. Sheep and cows, when ill, seek out certain herbs. An animal suffering from Chronic Rheumatism always keeps as far as possible in the sun. The warrior-ants have regularly organised ambulances. Latreille cut the antennæ of the ant, and other ants came and covered the wounded part with a transparent fluid secreted from their mouths. If a chimpanzee be wounded, it stops the bleeding by placing its hand on the wound, or dressing it with leaves and grass. When an animal has a wounded leg or arm hanging on, it completes the amputation by means of its teeth. A dog, on being stung in the muzzle by a viper, was observed to plunge its head repeatedly for several days into running water. This animal eventually recovered. A sporting dog was run over by a carriage. During three weeks in winter it remained lying in a brook, where its food was taken to it. The animal recovered. A terrier hurt its right eye. It remained lying under a counter, avoiding light and heat, although it habitually kept close to the fire. It adopted a general treatment, rest and abstinence from food. The local treatment consisted in licking the upper surface of the paw, which it applied to the wounded eye, again licking the paw when it became dry. Animals suffering from Traumatic Fever treat themselves by the continued application of cold, which M. Delaunay considers to be more certain than any of the other methods. In view of these interesting facts, we are, he thinks, forced to admit that hygiene and therapeutics, as practised by animals, may, in the interest of psychology, be studied with advantage. He could go even further, and say that veterinary medicine, and perhaps human medicine, could gather from them useful indications, precisely because they are prompted by instinct, which are efficacious in the preservation or restoration of health.

Correspondence.

THE RELATIVE VALUE OF SUBJECTS TAUGHT THE VETERINARY STUDENT.

SIR,—Now that Mr. Greaves has completed his essay on veterinary education, we are able to consider his opinions as a whole. The title of his paper suggested a careful, judicial summary of the value of anatomy, physiology, chemistry, pathology, etc. I confess to have had a feeling of some curiosity as to how he would accomplish his task, but I did not expect such a bold result as has followed. Not many men possess the natural and acquired talents requisite for profitably discussing the relative value of subjects taught the veterinary student. In attempting such a task Mr. Greaves exhibited great courage. As far as I can see, his only fitness for it consisted in the possession of "good intentions," and in having made for fifty years "his special business his life's work." Under these circumstances it was a wise discretion which prompted him to make his performance very different from his promise. On his first page he promised to "try and concentrate our thoughts on the uses and importance of the various subjects taught, and appraise them at their actual relative value." Throughout his future pages he fails to discuss any one of them, but treats them collectively, under a crude division into two classes—theoretical and practical. Even this apparently simple issue Mr. Greaves finds too much for logical and fair discussion. He attempts it by painting two gross caricatures—one a human ass; the other, of course, a prodigy, inclining to the goody-goody young man. The peculiar mental confusion of the essayist is, however, clearly shown by a few words in his comparison on page 398: "Every scientific subject, none of which subjects seems (*sic*) to be of the same value or importance as tact and business habits." Now, sir, what in the world has tact and business habits to do with the value of subjects taught the veterinary student? How can these quite extraneous matters be logically brought into a comparison of the value of theoretical and practical teaching? We are told the Examiners are over-worked, and that insufficient time is given to each student. How would it be if tact and business habits formed part of the test applied to a candidate for the diploma? No one denies the value of such characteristics, but where are we to draw the line? Morality, temper, health, and a dozen other matters are equally valuable. If we do not limit the test to strictly professional subjects, we simply render it impracticable.

The utter incapacity of Mr. Greaves to understand the duties of teachers, the limits of the body-corporate's powers, and the falsity of the standard of success in life, renders his whole paper useless. He fails to see the end which it is wished to attain, and he knows very little about the means for attaining it. He discusses many debateable matters, but none which properly come within the title of his paper. There is a remarkable similarity in Mr. Greaves' literary productions. The plan seems to be something of this kind:—First, an invocation to calm, philosophic reasoning, a gentle deprecation of haste or temper, a reference to the Deity, and a few lines of poetry; then he warms to his work, forgets the title of his paper, wanders from the subject, draws upon his imagination for facts, abuses those whom he cannot confute, and winds up by begging the question. It is very difficult to argue with a writer of this kind, and especially difficult when his grammar and composition are so involved as to make many of his sentences unintelligible.

If I have understood him aright, Mr. Greaves says that when students went to college two sessions, they came out good practitioners; but now that

they go for three, they are of very little use; and he draws the inference that the longer you stop at college, the worse you become. He demands that both teaching and examining shall be efficient, which implies that they are not. He tells us that there is now a greater percentage of rejected students than was ever known; but he does not tell us that most of them have been pupils. He sketches for us a model Examiner, and the unconscious humour of the picture induces me to reproduce it:—"In the Examiner there must be an absence of austere, pedantic, or frivolous manners; he must assume none but a business-like air. He should be an enlightened, intelligent man—a man of mature age and experience, considerate, patient, mild, benevolent, keenly observant, and firm; one who puts his questions carefully, clearly, coolly, and kindly, so as to be fully understood; and one who weighs the answers justly, who puts the student at his ease through his own apparent complaisancy. Though unseen, there is in him intentness of attention." This is grand—Emerson and Carlyle combined, only rather more so. Have we such a man? Does any one recognize the portrait? The danger lies in over-doing it; and, by way of caution, I would remind the Council of an old adage which says, "The gravest bird is an owl, the gravest beast is an ass, and the gravest man is a fool." How shall we identify and avoid the superlative-gravity Examiner.

If Mr. Greaves' statements were facts, the logical deductions to be drawn from his paper would be—

1st. Adopt a pupilage clause.

2nd. Teach less science.

3rd. Appoint Mr. Greaves an Examiner.

But his premises are false, and, therefore, these deductions must be false. He seems to feel this himself; and, on page 176, he says, "I am in favour of pupilage, but not compulsory pupilage." How are we to reconcile this statement with the whole tenor of the essay? On page 312, I find "It is important that the student shall acquire full knowledge of each and all the subjects now taught at college"; and yet on every other page is a sneer at all things scientific. The third deduction I do not consider worth discussion.

Mr. Greaves makes one suggestion which should not be lost. No one is better qualified to carry it out than himself, but we can all help. It is this:—"It would be wise for us to put into a practical and definite shape some scheme elaborated out of the principles, characteristics, and qualifications possessed by a successful man." Emboldened by another remark of our essayist, "That to give good advice implies no capacity to follow it," I venture to offer a few tactical hints, which I am told are not altogether unworthy of notice:—

Never hesitate. Always do something or give something.

Disguise your ignorance when you cannot display skill.

Agree with your client's diagnosis—it flatters him, and does no harm.

In treating a case never forget your ledger.

The majority of men will accept cheques; others will take coin.

Rise early, and always profess to be very busy.

Attend church, and, if possible, become a vestryman.

If the profession be really in the bad way indicated by Mr. Greaves, and by the deputy who wrote the milk-and-water leaders during the illness of the Editor, the Council should see to it. Only a formal inquiry can elicit the facts. Possibly a special general meeting might be advisable. Certainly no individual is in a position to say what is wrong, and where.

London. WILLIAM HUNTING.

SIR,—It would have been far more in consonance with my feelings to have abstained entirely from taking part in the discussion of the above subject; nor, to the ordinary mind, open to rational conviction, should it be at all necessary, after the very able letters of Mr. Penberthy and Mr. Shave; letters which, so far as they relate to the discussion, are literally true, containing not the slightest approach to exaggeration, for which I can vouch on *practical* experience.

Mr. Shave, in his communication to the February number of the VETERINARY JOURNAL, says: "Those young members of the profession who, like myself, have reaped considerable benefit from the College practice, will hardly be doing their duty to their *alma mater* if they do not add their testimony in confirmation of my statements," etc., etc. In reply to this challenge, which I think is a perfectly reasonable one, I take up my pen; and I may add I consider it to be the least that any graduate of the London school can do, who received, as I did, every needful assistance and encouragement from the teachers while studying there, especially as the efficiency of the teaching arrangements is being assailed; and, moreover, it is inferred, if not absolutely affirmed, that the opportunities for obtaining the necessary knowledge of and acquaintance with the practical details of the veterinary profession, are altogether inadequate to the requirements of the present day.

I am sorry to appear to be entering the lists against one of my Lancashire friends; but it seems to me that Mr. Greaves is, as to his facts, making many statements that he cannot substantiate; and when advancing his opinion as to advisability of a certain course of procedure under such and such circumstances, that he is either wide of the mark or behind the times. Of one thing I feel certain: however much I and others may differ on this subject from Mr. Greaves, I believe him to be actuated solely by an overpowering desire to benefit the veterinary profession.

I cannot expect you, sir, to afford me space for a letter of sufficient length o deal exhaustively with Mr. Greaves's numerous and various premises, hence I can only pretend to touch the fringe of the argument, and briefly state a few facts based on my own personal knowledge.

One of the chief matters about which Mr. Greaves's mind seems so exercised, is the fact that at a certain final examination a much larger proportion of students than usual were relegated to their studies, and Mr. Greaves asks, How is it? Well, without pretending to answer the question, not knowing either the men who presented themselves, or anything of their individual qualifications, I may perhaps be permitted to give it as my opinion that an isolated instance of this sort need not cause Mr. Greaves to quake for the honour of the profession, nor is he, in my judgment, justified on this account in condemning wholesale the system or success of the teaching conducted at the London school—for it is of this school only that I can offer an opinion; but from what I know of Professor Williams and Professor Walley, I doubt not they do all in their power to assist those students who enter their respective colleges, that they may turn out as well qualified to practise as men can be reasonably expected to be at the age of twenty-one years or so. Mr. Greaves must not expect young men of this age, whatever may be their mental calibre, to possess the ripe experience which it has taken him fifty years to obtain.

Mr. Greaves will perhaps say that he has come in contact with a number of young men who are deficient—may be lamentably deficient—in a knowledge of many very simple matters connected with their profession. Granted; but without any intention to wound the feelings of any such unfortunate gentlemen —provided they are to be found—I must express the opinion that the fault, if they are graduates of the London school, is with themselves: either they have

failed to avail of the opportunities within their reach, or they have no aptitude for their profession, and have mistaken their avocation.

Mr. Greaves seems to be under the impression that a practical acquaintance with the details of the profession cannot be obtained at the schools; and here, so far as London is concerned, I must tell him point-blank he is entirely mistaken.

Such opportunities, and that in all their minutiæ, are available to any and all earnest students, provided they have received such an education as fits them to undertake the study of a profession based on scientific principles, and such as do not present themselves in any private practice in the country. I need not reiterate these advantages, they are all clearly and definitely pointed out in the letters of Mr. Penberthy and Mr. Shave before referred to. I may, however, tell Mr. Greaves that such operations as castration, neurotomy, removal of tumours large and small, some requiring careful dissection and the frequent taking up and ligaturing of blood-vessels, while others were removed with the ecraseur, all alike calling for delicacy of manipulation; further, the application of the actual cautery in various cases of lameness; operations on extremely bad cases of Poll Evil and Quittor were repeatedly performed by myself on animals which were brought to what is known at the Royal Veterinary College as "*Cheap Practice*"—subject, of course, to the oversight of one of the Professors; and no better practice than this can an industrious student require, both as regards the number and diversified character of the cases coming for treatment on three afternoons of the week. Then, these are quite apart from and irrespective of a large number of patients that are brought by subscribers to the school infirmary, among which cases can be studied daily under the supervision of the Professor in charge, as well by private observation for as long a time as the student may desire, except such cases as those of Tetanus, requiring perfect quiet for the patient's benefit.

Operations of special interest, such as lithotomy, tenotomy, and the reduction of fractures, I had the opportunity of not only observing, but assisting in; also in the removal of that form of tumour known as Fungus Hæmatodes. I mention these as a few only among the many opportunities of obtaining practical experience that came within my reach for the mere seeking; and I can assure Mr. Greaves that similar advantages were open to all qualified to avail of them, who may have entertained serious intention of work; and I doubt not that so long as the present staff of professors and teachers retain their respective positions at the Royal Veterinary College, the same privileges will be available.

Then with respect to the examination of horses as to soundness, animals of all sorts, conditions, and classes are brought before Professor Robertson, Professor Axe, and Mr. Penberthy, and at the hands of these gentlemen undergo the most careful scrutiny. Any students who wish may be present meanwhile, and more often than not the examiner of the horse takes this opportunity of explaining defects, directing attention to specially good points in contour and anatomical development, and of requesting students to give expression to their opinions respecting the animal's soundness or otherwise; further, not at all unfrequently I have known Professor Axe request a certain number of students to examine one or more horses, write out certificates, and hand them in for correction or approval. Now if this sort of thing does not satisfy Mr. Greaves, so far as the efforts of the teachers are concerned, it is somewhat difficult to imagine what would come up to the standard of this gentleman's requirements.

Mr. Greaves would seem to be an out-and-out advocate of the pupilage system. The discussion of this subject in all its bearings would require reams of paper, and though books without number were written thereupon,

I doubt whether the most able *littérateur* could convince Mr. Greaves of the inadvisability of this system. I may give it as my opinion that there is much to be said on both sides of the question, and very plausible arguments can be advanced by the advocate of either side, but on the whole, after weighing the *pros* and *cons* very carefully, in conjunction with a close observation of the demeanour and success of those young men who were at the College with myself, and who had served a two or three years' apprenticeship, I have arrived at the conclusion that the pupilage system does more harm than good, unless a student went for a given period with a conscientious practitioner after passing his "B," or second examination; at which time he should be qualified to undertake the reading of works on pathology during his spare hours, and thus be able to intelligently compare the practice of his principal with what he may observe and what he finds in the text-books which are to be his guide in preparing for his final examination. Anything that may be learned with a veterinary surgeon before this period cannot certainly be other than knowledge gained by rule-of-thumb, without any proper appreciation of why and wherefore. Such an arrangement, however, I presume could hardly be carried out unless the schools altered their conditions of entry; the fact, nevertheless, remains the same.

No one can more sincerely regret than myself that so large a proportion of the candidates who present themselves for examination fail; that is, however, no reason why the onus of failure should be put upon the wrong shoulders; and I venture to suggest that before Mr. Greaves writes more upon this and kindred subjects, it would be as well that he should make himself better acquainted with facts as they are to-day; and from what I know of him I have no doubt that, having done so, he will honourably retract many of the remarks that he has made which are so derogatory to the acknowledged usefulness of the schools. There is one point which appears to weigh very heavily on Mr. Greaves's mind, and that is the lack of experience in practical knowledge on the part of young graduates. Let me ask what is the meaning of this word practical or practice? If I appreciate it rightly, it is the evident carrying out by dexterous manipulation of the theories we find propounded in standard works; hence a man must have a certain knowledge of theory before he can pretend to practise—in point of fact, theory and practice are handmaidens; the one is nothing without the other. Therefore I do beg that Mr. Greaves will in the future demand less urgently for practical men until the said young men have had a fair opportunity of obtaining that proficiency in practice that Mr. Greaves so yearns they should possess. You cannot put an old head on to young shoulders, nor would the phenomenon be desirable if you could; let the young man's mind be properly trained, and if he is at all fit for the work of our profession, a knowledge of practical details over and above what he can obtain at the college will rapidly follow.

I cannot believe for one moment that the failure on the part of undergraduates to pass their final examination which Mr. Greaves deplores, is altogether the fault of the men either. I am decidedly of opinion that with some of the examiners there is a decided tendency, if a candidate is found weak on any given subject, to keep pegging away at that same subject until the man is fairly driven to his wits' end; again, another looks you in the face and opens out his questions very much as a defendant's counsel cross-examines the plaintiff's witness, and may at the same time give a filip of sarcasm to any remarks he may think it necessary to offer upon a candidate's answers. Both these modes are in my judgment a mistake; the examiner, to do his work fairly, should inspire the candidate with confidence, and if weak on any given subject should fall back on another, and yet another, in order to discover how much the man really does know, and not how little he

is acquainted with any given subject. Many, perhaps most of the examiners adopt such a fair course, as I can testify by experience, but some do not, and as one is quite able to have a man rejected, I would ask Mr. Greaves whether he thinks this has anything to do with the failures he refers to.

The sum of the whole matter, so far as the London school is concerned, is that the student has far better opportunities and higher privileges than Mr. Greaves seems to be aware of, and it is this I wish to impress upon my Manchester friend.

J. SUTCLIFFE HURNDALL, M.R.C.V.S.

254, Upper Parliament Street, Liverpool.

SIR,—On re-perusing the replies (to my papers) of Messrs. Penberthy and Shave in the VETERINARY JOURNAL, from amongst many distorted extracts I find some matters so pertinent to my subject, that I think they may be referred to with some, if not much, advantage. In the first place, I trust neither these gentlemen nor any one else will be misled by constructions they put on a passage of mine about pupilage, or indenture of apprenticeship, to stand in lieu of, or in the place of, examination on practical subjects—frivolous criticisms, not creditable to their wisdom nor their sagacity. I never intended anything of the kind. I should have the examination just as thorough and as searching as if the student had not an indenture. I look upon it that the student, being in possession of an indenture showing that he had served three years with a general practitioner, would assist the examiner to arrive at certain conclusions more correctly and more satisfactorily as to the extent of the student's experience. I have assisted at the election of every examiner for twenty years. With a few exceptions, I know they are incapable of doing students an injustice. But I repeat they have to vouch for much they know not. But, perhaps, some may object, and say, "Why do you, who were gaining experience in your profession probably many years before even their mothers were born, try swords with these two, whose experience in their profession is of such a short and brief duration?" I do not want to complain, or charge these two young men with wilfully and intentionally perverting my meaning in many passages which would have been less indecorous and much more honourable of them to have left uncommented upon. But I will pass this, and refer to matters in their papers worthy of mental effort of the ablest men in the profession. I will at once discuss the question of the difference between college pupilage and the pupilage at a general practitioner's establishment. This will lead us to the heart, or the very kernel, of the matter in dispute.

The difference between Pupilage at College and Pupilage with a General Practitioner.

I have heard much laudation of advantages the students have offered them at the Royal Veterinary College. Now, I am not for one moment going to find fault, or detract from the positions advanced; nor will I, in the slightest degree, insinuate that any one of the teachers is deficient in knowledge, in education, or in diligent attention to his duties. Whether there are shortcomings or not, I believe the system is wrong; for, from some cause or other, there is a failure in results—an untrustworthiness in the results. I say the system is weak and has broken down. I am agreeable to give full credit to this fact, that there are some students who possess senses so obtuse that no teacher, however diligent and painstaking, can make clever. Still, there ought not to be, nor would there be, such gross failures as we are constantly meeting with, if at this and the other colleges the system was right and each teacher did his duties thoroughly. To say we are entering upon a brilliant

future would be a gross self-deceit to assert. The youth as he enters the V.S. establishment is several days before he feels his feet. He sees his master take a horse's pulse, give a horse a ball, other horses a drink; others he washes, and injects solution into quittors. This youth soon begins to take part in the work—holding the twitch, clipping legs for blistering or firing, etc.; he is shown how to go about a horse, to lay hold of a horse, to make a ball, and dress wounds; he goes out with his master, sees all kinds of cases and all that he does at them, and hears all instructions concerning cases; made to make memoranda, or keep a record of all cases of importance, together with a clear statement of the remedial measures used and results arrived at; he has certain modern books on his profession given him to read; it is his duty to see that the stock of medicine is always kept up; he is taught how to wrap up powders and bottles with tidiness and neatness; he must keep up the required stock of fever balls, cathartic balls, diuretic balls, also cow drinks, alterative powders, pots of blister ointment, digestive ointment, heel ointment, etc., etc.; keep the surgery, bottles, instruments, etc., clean and tidy; and see that all work done is correctly entered in the day-book, and the ordinary charges entered. These are all matters of his legitimate duties; there is no time for him to stand with his hands in his pockets, much less to have a cigar in his mouth. It is, and it has always been, my practice to get an eye, or heart, or larynx, dissect them, and explain them to the pupils. I write out twenty or thirty questions on anatomy, physiology, or pathology. I expect them returned, answered, in a month. This compels the pupils *to read* and *to think*. Then, occasionally, I have them in the room before me, and for one hour, or one hour and a half, question them on all kinds of diseases—causes, nature, symptoms, and treatment; also on the bones, muscles, and various vital organs. All this tends to instruct the pupil, and helps to advance him on the road to success. By these means he gradually acquires a fund of information invaluable to him in after-life. His master is continually pointing out to him matters in connection with cases. This attention is concentrated upon one pupil, who is obliged to devote his whole time, his whole mind and thought, to these subjects that are urged upon him; he is fully occupied in the work of the cases; he soon (if an intelligent lad) begins to take an interest in every case that comes upon the premises, and when his master is out he has to receive all messages and answer all inquiries. His master endeavours to make him understand the symptoms of different diseases; takes him with him to every *post-mortem*, and is careful to explain as much as the boy can understand, showing him the difference between diseased and healthy tissues. Thus time goes on for three years. Every day he sees and learns something, and he becomes more and more familiar with every kind of case; seems to know intuitively what is amiss; is at home in manipulating and treating them with ease; and occasionally—nay, frequently—he has to go through his facings. It puts him on his mettle. I will give an example or two. Once, in my absence, a pupil, about eighteen years of age, had to attend a severe case of abdominal pains. It was a protracted one. After giving various antispasmodics, stimulating abdomen, etc., he had recourse to bleeding. The owner—a big, blustering, austere, and very critical man—had him sent for into the office, and in an austere manner and tone said to him, "I am informed you have bled this horse; it would have been much better if you had put blood into him rather than have abstracted blood." The boy stood before him, without being self-assertive, and replied, "No, sir, I had done all I could without avail; it is a proof that I did right, for since bleeding he has become quite easy, and is now doing well." The owner then made answer, "Oh, if that is the case, it settles the question; I am glad you have done it." Now, that was acting on his own resources; it was a lesson in tact, and proper, success-

ful treatment in pathology, based on scientific principles (nor yet is it cant or trickery, as Mr. Penberthy has it), and, I hesitate not to say, was worth more to him than scores of lectures—some of them on subjects of, perhaps, almost worthless possession. Again, during my apprenticeship, in 1836, I was called out to see a new and valuable cart-horse; he was a big horse, and very plethoric. I found his breathing very much accelerated and pulse nearly 100. The owner was present; he was a man possessed of more than an average share of common sense, but withal he was a strict, austere, and critical man; he had only just come to us. Our predecessor bled almost every case; bleeding was then in full swing. The owner asked, "Shall you bleed him?" I replied, "No, sir, taking all into careful account, I think it is more excitement than congestion; we will see how he is in the morning." I, of course, gave medicine, etc. Next morning I saw him again, the owner present. "How do you find him?" he asked, in a firm but mild tone. I replied, "Not worse, sir, and only a shade better; pulse ninety-six." "Shall you bleed him?" again he asked. Now these are ticklish moments in a man's life, that find out what he is made of. This case was quite as likely to do badly as to do well; had the case done badly in the end, he would have blamed me for not bleeding, and I should have lost his confidence. I again answered, "No, sir; there is no absolute necessity for it; I am strong in my opinion that we shall find him better at noon and at night." The owner saw that I was thoughtful and careful, and he trusted me, although only a boy. At noon—breathing a little quieter, and pulse ninety—again I was asked, "Are you going to bleed him?" I replied, "No, he is going on favourably." At night still improving, he went on all right. That customer was the largest and best one we had, and he has employed me ever since. Mr. Penberthy characterises me an impostor for doing this work. It is these cases of individual responsibility, realities of actual practice, that leave a lasting impression; they are lessons in life—in tact—which are never taught or experienced at college. I say the youth should be an expert practitioner before he enters the portals of such an edifice; hence the two different modes of pupilage. There should be no diverse or competing interest in this instruction. I could give any number of cases similar to the above, all going to show the difference, or disparity, between the two methods; for, after all, it is in the public arena where the final and last verdict is given—the ultimate arbiter; there the great Board of Examiners sit. At the general practitioner's, the pupil is an active agent; he becomes part and parcel of the establishment. Most of them are, of necessity, moulded into smart, sharp business men. They gradually assume a responsibility, and have responsibllity placed upon them, which forces them to feel a special interest in every case. This unconsciously gets them into business habits, handy in their work, and prepares their minds for college. They can now diagnose disease and lameness with almost certainty, and can treat them correctly; but, forsooth, Mr. Penberthy says they are merely impostors. Go into a veterinary surgeon's establishment; you see the pupil stripped, his shirt-sleeves rolled up above the elbows; he is standing on a bucket or a stool; he has a brush in his hand, scrubbing away with a will on a horse affected with mange. His master is superintending the whole time, from beginning to end. He, too, is in his shirt-sleeves, rubbing on the soap, and lading on the hot water, the master showing him how to rub, and where to rub, telling him particularly that it is of very great importance that every inch of the ground must be thoroughly gone over—viz., washed, wiped dry, and then dressed. But I may be trying the patience of some of my readers, who are ready to say, "Surely, Mr. Greaves does not mean that we pupils should mess with dirty, filthy cases of Mange; we are learning the pathology of a scientific profession; it is *infra dig.* to expect it. It is the work of the groom or stableman." These sort of gentlemen

would delegate many of their duties requiring industry to some one else. I would here observe to such that these notions put you above your work; this work is simply your actual duty. You may think it is supporting your dignity, but I say it is supporting false pride and laziness. If you leave this work to the care of the groom or stableman, it is just fifty to one that you never cure a case of true Mange in your life. The skin is never half cleaned; you will be tinkering on week after week without improvement; the owner's patience becomes exhausted, and he sends for another veterinary surgeon, who does the work himself, and it soon recovers. These false notions may have been implanted in his mind at some institution, but never in a veterinary establishment. Perhaps this refined, scientific pupil could show you, with the microscope, the Mange acaris, and expatiate in scientific terms, being perhaps fond of controversial rhetoric; but the result of his method of scientific pathology is certain to end in rejection, in failure, and in poverty; it is illusive and unsatisfactory. Have we not been told over and over again by three or four professors, sometimes even in public, that the youth who has seen practice is conceited, and makes the worst student? Notwithstanding, Mr. Penberthy, in his innocence, very properly calls them sweeping, senseless assertions. During my limited experience I have never found this statement true.

I can say, in my own case, when I got to college, I listened with the keenest interest on every subject, all matters I had read on, and was now yearning to hear them explained to me. I have a clear and distinct recollection at this very hour of Professor Spooner, at the request of, I believe, Mr. Kenna, of Belfast, giving a demonstration in the afternoon of the day of opening, 1839, on the phenomenon of rumination, and the actions of each division of the stomach of ruminants. I can never forget the clearness with which everything was shown us, nor can I ever forget the intense delight I experienced while I was drinking in the words of wisdom he was speaking. Afterwards I went into the dissecting-room. A solitary student was there; he was on his knees, examining the bones of the fore-limb of the skeleton. I approached him, and made his acquaintance. We were fast friends from that moment. He was a practical student like myself; we had our minds whetted, and were downright hungry for more knowledge; we could not afford to lose a single lecture on any subject; we felt hungry for the knowledge college could give. The true value and place of the sciences appertaining to our art had become manifest to us. I trust we were not conceited. We could observe many others who had not had their minds, their genius, their capacity, awakened by having seen the intensely interesting cases of the ravages of disease in our domestic animals. We could see these men sprucely dressed, and wholly indifferent in any efforts of theirs to obtain knowledge but what was thrust upon them by their teachers; and very often they were seen shirking the lectures. A mere diploma is valueless; it is the knowledge and experience which a diploma should symbolise in which its value consists, and if he who owns a diploma lacks the knowledge and experience it sets forth, the owner is simply a *pretender* and an *impostor*. Not many months ago we were summoned to attend a horse said to be in a dying condition. A veterinary surgeon had seen the horse before we had been called in. He diagnosed the case a ruptured stomach; said it was utterly hopeless; would do nothing for him, and left him to die. This gentleman had been taught scientific pathology at college—yes, he had been taught sciences—and this was the untrustworthiness of the result. Neither my partner nor myself were in when sent for; so one of our pupils attended. He administered antispasmodic medicine, and with some trouble and management got the horse up; the pains subsided, and in a few days the horse was well and at work. But, forsooth, because this pupil's pathology was not based on scientific knowledge, he is an impostor,

according to Mr. Penberthy. But pray what would you call the other gentleman—I mean him whose pathological knowledge is based on scientific principles? A man is of no value except in so far as he is of use. But I must continue this at another time. T. GREAVES, F.R.C.V.S.

VETERINARY EDUCATION.

SIR,—Professor Walley, in his long letter in your last issue, has severely taken to heart the criticisms and suggestions which have recently appeared in your columns on the much-talked-of deficiencies in the practical education of our students. After broadly hinting, in his opening sentence, that he doubts whether the VETERINARY JOURNAL fulfils its object of improving the profession, he, in his second paragraph, says he would much rather have seen a discussion on some useful subject. What subject, however, can be of more importance to the public, the profession, and the student, than practical education? None; for without it a veterinary practitioner cannot give satisfaction. In his third paragraph, Professor Walley speaks of suggestions for a very much-needed reform as puerilities, and says one might be pardoned, while reading them, for imagining himself as living one or two hundred years ago, instead of in the nineteenth century. If, however, he were an Examiner, I fancy that very many of the answers given to simple practical questions might lead him to doubt whether he was not living even in the sixteenth century, and almost before the era of veterinary colleges. Then anonymous writers are castigated, and are charged as uttering "*vile slanders.*" In the sixth paragraph we have some almost pathetic reflections, which seem to indicate that Professor Walley has taken general criticism as a personal matter; and, finally, after previously denying that anonymous writers are entitled to be considered as gentlemen, he, in the tenth paragraph of his letter, says he is not going to imitate the example of throwing mud! Are we, then, to consider all the above amenities as rose-water? As to anonymous writers, your invariable rule is, I believe, that all letters intended for publication must have the name of the sender privately communicated to you, as a guarantee of good faith. Very many valuable opinions can be offered by those who would shrink from having their names published, some from dislike of fame or notoriety, others because they see that but too often fair criticism is made a personal matter. It is, therefore, permitted to earnestly hope that we may have the benefit of receiving all opinions in the VETERINARY JOURNAL, whether the writers choose to sign their names or not. It is freely admitted by the whole profession that a great reform in practical education is urgently required; in fact, no subject attracts such widespread interest and discussion. Mr. B. A. Clancy, who obtained first place for the last Fitzwygram prize, well expresses, in your number for March, the ideas of the students, and they are the class most to be benefited by reform. It is not sufficient to assert that opportunities are offered at the colleges for obtaining practical knowledge, and that students are to blame if they neglect them. What is more wisely said is that they should be compelled to learn indispensable subjects, and that shirkers should be taught that until they have demonstrated their fitness to the satisfaction of their teachers, they shall not be allowed to present themselves, and show their ignorance to the Examiners of the Royal College of Veterinary Surgeons. I would invite attention to a profound remark of Mr. Clancy, where he says that the veterinary surgeon must be acquainted with the points and shape of the various breeds and classes of horses, cattle, and sheep, and be able to converse with his clients on the merits and demerits of their studs. Now, can all this be learnt at any college? There is

another most important question which has not yet been answered. How is it, if professional matters can be entirely taught at college, that almost every newly-made veterinary surgeon who has not previously been a pupil to a private practitioner finds it necessary to go to one before he feels sufficiently confident to seek an appointment, or enter practice for himself, with any good chance of success. As long as we neglect practical matters, we are like the enthusiastic astronomical professor, who was so absorbed in pointing out the wonders of the stars that he and all his admiring students fell into the unperceived ditch at their feet.—Your obedient servant,

"EXPERIENTIA DOCET."

13*th March*, 1885.

"FELLOWSHIP;" THE NATIONAL VETERINARY MEDICAL SOCIETY, ETC.

SIR,—If your correspondent, Mr. Cunningham, would, in treating on the above subjects, use argument without sarcasm, and give facts without insinuations, his remarks would, I think, be read with more pleasure, and give less pain to individuals.

Fellows.—I have always understood it to be rather creditable than otherwise for a member of any profession to aim at taking the highest position that he can in it. To this Mr. Cunningham does not appear to agree; but it may safely be left to the good feeling and judgment of the profession generally to answer this for themselves. I, however, cannot help thinking that it is a misfortune that one who can so freely use his pen should put it to the purpose of throwing mud broadcast, with a hope that some of it may stick. I fail to see what good purpose Mr. C. hopes to serve by so freely bespattering us poor Fellows. Some of us, at least, were 'cute enough to "come early to the bridge that they may get easily over."

I was not before aware of the resignation of one of the Fellowship Examiners, but regret "that the excellence of some of the Fellowship candidates was not up to this Examiner's standard, and that sooner than pass or reject such men he resigned." I can scarcely believe, in spite of Mr. C.'s assertion, that any one in the position of an Examiner would so far fail to discharge his manifest duty as to decline to give his opinion for or against any candidate.

Mr. C. says: "The fact stands out broad and plain still, that in round numbers there are 100 Fellows and 1,900 members R.C.V.S., and that in 1886 Fellows only shall be eligible as Councillors and Examiners, and that this arbitrary decree deserves all the hard terms that can be applied to it." I hope this gentleman is alone in applying such "hard terms." What are the facts? The law as it stands was framed and sanctioned by a Council of Members. If the clause was so objectionable, why was it not objected to at the time? And after all, what is the cause of complaint? If Mr. Cunningham and his friends wish to occupy the position of Examiners and Councilmen—knowing the law, why did they not qualify themselves by becoming Fellows? Doubtless they could have done so under his "Class I.—men in attainments of well-known high standing," and left the "Class IV." men less numerous, namely, those who, "with considerable trepidation, or with confident, plausible exteriors, trusting that, as they are well known and very fair practitioners and most promising young fellows, whose general and professional knowledge is most satisfactory, and have come early to the bridge,—that they may get easily over." I would suggest that there is still time to qualify before 1886, and would like to know the reason why "a good, right-thinking, straightforward member will at all times make as good, and a *better*, Councilman and Examiner, than a possibly

more brilliant and accomplished, but, it may be, erratic, or on the other hand, *low* Fellow." Does Mr. C. forget that a Fellow is also a Member, and surely takes as much interest in the profession as before he took the higher degree? Or would he, as appears from his letters, consider the Fellowship as a disqualification from holding such office?

Mr. C. says he has nothing "against the Fellows personally," but he goes on to say: "When as Fellows they stand out as men of a higher order, *claiming* Council and Examining Board as their exclusive right, what just claim, in all reason, have they on their side?"

I answer, the Fellows have never made such claim; the Members in Council have made it a law, and unless that clause is rescinded it comes into force in 1886. I think it unfortunate, and an evidence of lukewarmness in the profession, that more members have not qualified themselves to take the position; and although I may be excused in not agreeing that the Fellowship practically disqualifies a member from holding such office, still, I should be prepared, if it was found to be the generel feeling of the profession, to vote for delaying for some years the putting of this clause into force; and should regret, equally with Mr. C., that certain Members of Council should be disqualified from holding that honourable and onerous position. At the same time, I must again point out that it would be an easy matter for them, "as men in attainments, of well-known high standing," to qualify.

National Veterinary Medical Association.

The fact of my being president for this year of the above Association, is really the cause of my writing this letter. In the interests of that Association, I think it should be known to the members of the profession generally, what are the true facts of the case as to Scotland not being selected for its meeting this year. At the first meeting in London, there were invitations given to hold the next meeting from the Lancashire and Midland Counties' members. I was asked, as representing the Midland Counties, to withdraw in favour of Lancashire, it being thought, as a young society, that Lancashire might be the more popular place. Of the wisdom of that selection, no one who visited Manchester last July can doubt. With the withdrawal of our candidature, it was understood that we should have the first claim for a future meeting. Prior to the Manchester meeting, the Midland Counties' members were canvassed, and an almost unanimous vote was given in favour of asking the Association to hold its next meeting in Birmingham, and a written invitation was sent, inviting the Association to hold its 1885 meeting in Birmingham, and I believe I am correct in saying that this was the only invitation given. Certainly, Edinburgh was proposed and numerously supported at the Manchester meeting, but I believe if the true facts had been known, this would not have occurred. I would ask, with this explanation, will the remarks made at the time and since of snubbing the Scotch members, etc., apply? I think not; and I feel sure, although the Scotch members (much to the regret of their southern *confrères*) hold aloof from us in this matter, that if they will come forward and invite the society to go to Scotland in 1886, that their wishes would be complied with. I, for one, would support it. At the election of the Council of the Association at Manchester, I had the pleasure of nominating Mr. Cunningham as representing Scotland, and shall be glad to see him take up the cudgels in favour of the Association, and so induce his friends and neighbours to join in (what I believe to be) an association for the benefit of the profession generally. I hope they will attend the next meeting, and give us some evidence of their goodwill and support. I can assure them of a hearty welcome.

A good deal is said and written about the disadvantages laboured under, and the unfair treatment meted out to our friends in the North. We, on this

side of the Tweed, appear to be looked on as the natural enemies of the Scotch members. Such a feeling, I am quite sure, is contrary to the fact; for amongst my numerous acquaintances and friends in the profession, I have never heard such a feeling expressed; on the contrary, I believe the sentiments of members generally is for a fair representation of all classes, districts, and colleges, but the majority in veterinary, as in other politics, are sure to preponderate. If any class has a grievance, why do they not promulgate some well-considered scheme to alleviate it? Do Scotchmen and Scotch graduates disavow their brethren as soon as they come South? I think it will be found that there is a fair proportion of both in our governing body, although they may have come to seek their fortunes in Old England. Would the present President of the Royal College of Veterinary Surgeons be considered a Scotchman because he resides in Edinburgh? or the Principal of the London College a cockney on account of his residence in Camden Town?

I cannot agree with Mr. C. that "education, science, and gentlemanly demeanour" are the reverse of favourable to the veterinary surgeon. Before the profession can take its proper place in the scientific world all these must be necessities, and the possession of them in the true gentleman would cause him to laugh at the idea of being frightened to soil his hands to perform any necessary operation.

Apologising for the length of this letter,

HARRY OLVER.

Tamworth, *March 13th*, 1885.

SIR,—I am pleased to observe that your correspondent, Mr. Cunningham, has been taken down a peg or two by my criticism, and instead of vituperating and insulting members of the profession who do not happen to belong to his clique or to his side of the Border, he concentrates his venomed ferocity on those who have the misfortune nowadays to be Fellows of the Royal College, and manifests what manner of man he is in his allusion to myself. Not knowing who I am, his ferocious diatribes are as vapid and futile as his notions. I do not wear my heart upon my sleeve for such daws as Mr. Cunningham (and we have too many such as he) to peck at. Anonymity has its uses, especially when dealing with such people; and good work is often done by the anonymous.

The abuse which Mr. Cunningham and his friends across the Border indulge in cannot be accepted as argument; nor is it in any way calculated to do good. I do not, therefore, intend to notice him further in this direction, as there would be no advantage in arguing whether the groom, farrier, and shepherd class of veterinary surgeons, which he swears by, is a better one than that composed of well-educated, decent-mannered men. Everything depends upon taste and association. If unqualified practitioners are more numerous in England than in Scotland, I could give a more substantial reason than your correspondent affords.

With regard to the Fellows, who are so mercilessly reviled and traduced, all I can say is that I am not aware that they, as a body, have laid claim to anything exceptional, or done anything to merit such treatment. As I have already stated, they have shown a better spirit than those who abuse them. It is somewhat strange that, after so many years, an outcry is now being raised about the degree and the privileges it was intended to confer. It would seem that the Members of Council who obtained the Charter empowering it to grant the degree, made the mistake of imagining there was improvement and ambition in the profession, and that the Royal College of Veterinary Surgeons could be put on the same footing as the Royal College of Surgeons in this respect. Alas! if the utterances of Mr. Cunningham and some others

are to be taken as a *criterium*, we are a century behind that corporation. We have those among us who are better at throwing down than raising up—professional iconoclasts, who cannot tolerate anything but a dead level of dull and hopeless mediocrity. "Pity 'tis 'tis true." Mr. Cunningham's allusion to "luminaries" is amusing, especially when he localises them all in his own region. What does he mean by the term, might I ask? A farthing rushlight in a dark room may be a luminary. In the kingdom of the blind the one-eyed man is king. The light emitted by some of his so-called luminaries has been at times rather startling—especially with regard to Pleuro-pneumonia in American cattle and in America, the etiology of Tuberculosis, Glanders, etc. Luminaries, forsooth!

If Mr. Cunningham will favour us with the name of the person who retired from the Fellow Examinership, we shall know whether the statement is true; until then I shall consider it a figment of imagination. If it is true, then all I can say is that the individual must have been a mean sneak, destitute of courage to perform his duty.

With regard to the National Association, I am sure Mr. C. does his countrymen an injustice. They are not so mean as to sit on the coat-tails of their Southern colleagues, and seek to enjoy their amusement or increase their knowledge for nothing. That would be too characteristic of some North-countrymen. F.R.C.V.S.

PRACTICAL EDUCATION.

SIR,—In your last issue I notice a letter on the "Practical Education of Veterinary Students" from the pen of Mr. B. A. Clancy, Dublin.

Having graduated in the same year and at the same college, I was rather surprised to read some of his remarks, more especially that part of his letter in which he says, "Let it be demanded that the age of the horse, as shown by his teeth, may be lectured on." If Mr. Clancy cannot call to mind any of our principal's lectures (illustrated with dried specimens) on this important subject, I would ask him to look up his notes, and not only will he find that we had lectures on the subject, but also practical demonstrations in the college practice daily.

Again, in the same portion of his letter he makes a statement to the effect that certificates of soundness were only recently written once during the session; this is incorrect, and the only way I can account for Mr. Clancy's want of knowledge on this point is, that he must have been absent from the college at the different times when certificates of soundness *were* written.

Apologising for trespassing on your valuable space,

Newcastle-on-Tyne, *March 13th*, 1885. COLIN GRESTY, M.R.C.V.S.

"AN ECHO FROM THE COUNCIL CHAMBER."

SIR,—In the VETERINARY JOURNAL for February, at page 149, I pointed out that an outsider had to be called in to officiate as an examiner. In a foot-note the editor remarks, "We believe there is no foundation whatever for the statement in this paragraph." I am exceedingly sorry the editor has thought it necessary to give my statement such an emphatic contradiction. I think I need only adduce the fact that on several occasions, Mr. Rutherford has had to take the place of an examiner in cattle pathology, and only at the last examination Mr. Campbell had, at a short notice, to officiate as examiner on pathology, and Mr. Cunningham on horse anatomy, and Mr. Batt in London. These four gentlemen are all of them outsiders.

Again, at page 150, I speak of examiners doing double duty (which, in a footnote, he admits), and on one occasion one examiner did the duty of three examiners in one day. On this the editor expresses himself emphatically and says, "We never knew of such an occurrence." Surely, it should not be necessary for me to remind Dr. Fleming that in July last he had in one day to do his own work in pathology in the final; he had also to do Mr. Banham's morbid anatomy, and also Mr. Cox's practical horse—Mr. Banham having been taken suddenly ill, and Mr. Cox suddenly summoned home?

THOMAS GREAVES, F.R.C.V.S.

[Mr. Greaves does not fairly represent what we took objection to in the first paragraph of his letter. It was not to the statement that "outsiders," as he is pleased to designate members of the profession, have been called in on occasions when the regular examiners could not officiate to act for them; it was to the assertion that these gentlemen were "wholly unprepared, and probably wholly unfit," to examine, and that the passing or rejection of a student was decided by this "irregular, temporised, and incompetent Board." We claim to know more of the examinations than Mr. Greaves, and we repeat our expression that "there is no foundation whatever" for his statement. Such a Board would be perfectly regular; and, as for the incompetency of the gentlemen who have been called in to act on rare occasions, we challenge Mr. Greaves to name them and give proof of their incompetence.

With regard to the second objection to our remarks, the asterisk was, by mistake, placed wrongly. It should have been at the end of the sentence following that to which it was appended, and wherein Mr. Greaves asks if it is to be wondered at that an examiner's brain should be tired, wearied, and muddled when he officiated for one, or even two, of his colleagues. We repeat, in this instance also, that we never knew or heard of an examiner's brain being tired, wearied, and muddled through performing such a task; but if Mr. Greaves will furnish us with evidence of this, we will believe him; otherwise, being better informed as to this than he is, we maintain that his statement has no foundation. And we are certain that he can know little, if anything, of the fitness or unfitness of the examiners; while we can state positively that, on the occasion referred to by Mr. Greaves, Dr. Fleming did not feel either tired, wearied and muddled, or unfit to examine. It is not true that Messrs. Campbell, Cunningham, and Batt were asked to act as examiners at short notice at the last examinations, and neither are they "outsiders," but Members of the Royal College. We leave Mr. Greaves to pronounce them and Mr. Rutherford unprepared and incompetent for the duty they were requested, and kindly undertook, to perform.

It is very unfortunate that, owing to prejudiced information, and a feeling of discontent, Mr. Greaves' letter alluded to is simply a tissue of erroneous statements and baseless hypotheses.

Among other things, he states that the Scotch Board of Examiners consists of only eight members. The number is ten; and though he tries to show that the London School is more favoured in this and other respects, yet it is the fact that there is no difference whatever between it and the other schools.

We are astonished at the course Mr. Greaves has taken in this matter, as it will not enhance his reputation in any way, nor tend to advance—what he has always professed himself so anxious for—the unity of the profession.—ED. V. J.]

THE ROYAL COLLEGE ARMS.

DEAR SIR,—Can a registered practitioner use the coat of arms of the College—"*Vis unita fortior*"—on his labels and billheads? M.R.C.V.S.L.

[If, by using the Arms of the Royal College, a registered, or rather "existing" practitioner leads people to believe that he is a Fellow or Member of that college, then undoubtedly it is illegal. Our opinion is that he has no right whatever to use the arms of the college, and that he should be compelled to desist.—ED. V. J.]

AN APOLOGY.

SIR,—At page 105 of the *Veterinarian*, I stated that Professor Robertson "voted against the motion he had previously seconded." He writes, in this month's VETERINARY JOURNAL, page 220, "that he voted in the minority." When the votes were taken, I was very particular in counting every hand held up for the motion. His hand was certainly not seen by me; it must have been held up so low as to entirely escape my observation. Five or six Members of Council confirmed this decision. Under these circumstances it was natural to conclude that he voted in support of the views he had just expressed against the motion. If, however, it is as he says, I have done him a wrong; and, in appreciation of that feeling which every honest and honourable man should respect, I hasten to acknowledge the injustice I have unintentionally done him, and the doing which, I wish to say, I very much regret.

Knott Mill, *March 13th*, 1885. THOMAS GREAVES.

ELECTION OF MEMBERS OF COUNCIL.

SIR,—Whilst there is yet time, I would crave space for a few lines to call the attention of members of the profession to Clause 9 of the Supplemental Charter, granted on the 23rd August, 1876, which is now being discussed by some of the veterinary medical associations, and universally condemned, and which will ultimately place the profession in a most anomalous and helpless position if it be not revoked. I shall not now wait to inquire or bring forward any arguments to show that this ought to be done, as I think it unnecessary so to do, but merely to point out that it would facilitate this end, if, at the forthcoming election of councilmen, members and associations would agree to vote for those only who will pledge themselves in favour of this repeal, and assist in obtaining the necessary remedy to allow the whole of the profession to continue to have a voice in the management of its affairs, and not throw them entirely into the hands of a few self-elected "Fellows," however good they may be. JAS. P. S. WALKER.

Oxford, *March 10th*, 1885.

"BURSATTI."

SIR,—With respect to the subject of "fungus finding" in Bursatti, on which Mr. Steel, in the January number of the VETERINARY JOURNAL, dilates, I would beg to make a few observations, and to ask a few questions. In or about 1875, I remember reading an account by a Dr. Smith, of the Indian Medical Department, shortly followed up by that of Dr. Fleming, Staff-Surgeon, Indian Medical Department, on the pathology of Delhi Boil in man—a disease which has been said to bear many analogies to Bursatti in the horse, although differing from it in certain essential particulars.

Well, not many years later, I was surprised to find an article headed "Bursatti," the nature of which was also claimed to be fungal, by Mr. F. Smith, Veterinary Surgeon, Army Veterinary Department. This was shortly after followed up by another, of a similar nature, from the pen of Mr. Steel, then at Ipswich. To go into details would perhaps take up unnecessary space. Therefore, to be brief, this subject was taken up, and has since been taken up, not alone by us, in regard to Bursatti, but as concerns the fate of the parasite alleged to have been seen in Delhi Boil in man also. For, as my letter on the subject, in the VETERINARY JOURNAL for December, 1884, will show, the parasitic nature of Delhi Boil has been finally disproved. *Vide* also "Report on Oriental Sore," by Drs. Lewis and D. D. Cunningham, a copy of which may be had by applying to the Sanitary Commissioner with the Government of India.

We have given the subject of Bursatti our best consideration, and find that "parasites" are not characteristic of it. Be it also remembered that specimens of Bursatti sores submitted for examination many years since to Dr. Thin—no mean authority—failed to show any trace of the alleged parasites.

In conclusion I would beg to ask how is it—

(1) That similar parasites to those figured as found in Bursatti, occur also *in ordinary ulcers during the rains in India*, and parasites have been found also in *healthy* tissues which have been hardened in chromic acid or chromate of potash solutions?

(2) That the clinical history of the disease is *not* in accordance with the received notions of parasitic action?—Yours, obediently,

Cawnpore, *January*, 1885. R. W. BURKE, M.R.C.V.S.

INTERNAL TEMPERATURE AND TUBERCULOSIS.

SIR,—In these days, when one gets more kicks than halfpence, it is truly refreshing to find that there are still in existence men like my friend Mr. Harrison, whose tender mercies are the very opposite of cruel; and I have to acknowledge my obligations to that gentleman for the very tender manner in which he has handled me in his last letter, *in re* the internal temperature of animals. I can only explain the *very remarkable* results of Mr. Harrison's investigations by assuming that the Westmoreland cattle (at least, while they remain at home, for they certainly comport themselves, in the matter of temperature, in the same way as do all other reasonable bovines when they reach this part of the world) are more cold-blooded than any others, or that the thermometer used by Mr. H. was manufactured in the year 1. Had one of my pupils put into my hands such a statement as the one published by Mr. Harrison, I should have asked him if he had placed the right end of the thermometer in the rectum; but, joking apart, I would strongly advise Mr. H. to hang up his present thermometer as a memento of the past, and at once to procure a self-registering instrument from some reliable maker.

In reference to the subject of softening in the products of Tubercular Mammitis, I do not see that any other meaning can be attached to my remarks than that, personally, I have rarely seen either caseous or calcareous changes in the *udder lesions of Tuberculosis*. I am quite familiar with the differences which exist between calcareous and caseous retrogression, and I see no reason why I should alter my opinion in reference to the contamination of the milk in Tuberculosis; nor can it, I think, be too strongly insisted upon that unless softened matter—which is far more dangerous, as a source of local infection, than fibrous tubercle—gains access to the lactiferous ducts, or unless

tubercular ulcers are formed in the mucous membrane of the latter, Tubercular Mammitis is not likely to produce milk contamination. Were the virus of tubercle always present in the blood stream—from which, so far as I know, it is absent until the lymphatic vessels, especially the thoracic duct or the inner coat of the blood vessels, become involved—I could understand that the various secretions of the body would, under all circumstances, become splendid channels for the dissemination thereof, and that not only would the milk, but the expired air, the saliva, the fæces, and the urine, become endowed with infective properties.

As to the nature of Scrofula, I should be very happy to oblige Mr. Harrison had I time to enter into a lengthy explanation on the subject. I can only refer him to my remarks thereon, at pp. 144-5, in the "The Four Bovine Scourges," and to the different works on pathology. I will, however, here say, what I am sure Mr. H. must also know perfectly well, that a very thin line of demarcation exists between scrofulous and tuberculous subjects, and that in the long run the vast majority of the former develop into the latter.

THOMAS WALLEY.

Royal Veterinary College, Edinburgh, *March 7th.*

VETERINARY THERMOMETRY.

SIR,—Mr. Macgillivray having been challenged by me in the January number of this Journal in regard to veterinary thermometry, etc., and having failed "to come up to time," I shall not have much to say to him further on this subject. Having, with your kind indulgence, been given the opportunity of (on this question) "nailing my colours to the mast," so far as the healthy temperature of animals in Westmoreland obtains under certain conditions, I would advise my friend (if he will allow me to call him so) to enjoin his numerous clients to ally a white bull to the black runts about Banff, with a view to suppress some of the extraordinary internal heat which the dark skin evidently induces in Scotch cattle. It would, in my opinion, if the climate is not too cold, much facilitate their adaptability for fattening purposes. I need not give a person of Mr. Macgillivray's extensive experience the "whys and wherefores" of this proposition, but I would ask him to give the profession his thermometrical observations on the last fifty out of all the thousands of cattle he has examined, with the results of his diagnosis aided by that instrument; as, on his own confession, he feels quite at a loss when a "good clinical thermometer is awanting." As to Professor Walley's disposal of my "wonderful fallacy about the 98·4° F. temperature," it may be considered (so far as the average is concerned), an open question yet. Mr. Macgillivray appears to have been quite astounded at my presumption to "write critically" on a subject I was quite ignorant of; all I can say is that there have always been fools of that description, and it remains for such highly intellectual beings as himself to suggest a remedy to stop them. Of course, "I put this little cap on, as there would be no joke if I did not. And then as to my Latin not being reconcilable" with the context; all I can say is that, when I am writing for the press, my pen is very apt to "dig" into the Latin or some other inharmonious tongue, and if it comes to my friend all "topsy-turvy," why, he might, one would think, try to gather the substance of what was meant without "airing his learning" by carping criticism. If my memory serves me right, I think I have noticed that Mr. Macgillivray, in some of his previous contributions to this Journal, is quite *au fait* in some of

the Continental languages. It is a pity no member of the profession has seen his way to tell him before. The Dutch temperatures which are quoted, together with the camels and elephants, have no relation with Westmoreland, so I pass them. There is nothing in Mr. Macgillivray's letter dated 14th February, 1885, that calls for any comment from me, excepting the concluding assertion, "namely, that the chief agent in propagating tubercle in man and the lower animals is our milk supply." I ask him (as a member of the veterinary profession) to substantiate this assertion by one or two solitary instances within his own extensive practice and observation.

Burtergill, Westmoreland, J. HARRISON, M.R.C.V.S.
March 9th, 1885.

COMPRESSED RATIONS FOR CAMELS.

SIR,—As one who has taken much interest in questions affecting army cattle and transport, I would ask your permission to direct the attention of your readers to a remark contained in a small pamphlet written by Captain S. S. Parkyn, late Royal Irish, Assistant-Superintendent of Transport in Southern Afghanistan, in 1878-80.*

Speaking of the treatment of camels, Capt. Parkyn says :—"With regard to the grain ration, I have already stated that I do not consider it proper food for a camel, in an unprepared state. From experience with some thousands of camels, I have invariably noticed that in nearly all cases the grain is not properly digested. *Compressed food might, I am sure, be prepared, containing the proper ingredients.* This is particularly necessary for animals moving with troops, where the baggage-animal has to move in accordance with the convenience of the troops, and therefore fares badly."

I do not know if this suggestion has been yet tried, but venture to think that wherever the carriage of such rations is admissible, a portable, well-chosen ration for the camels would well repay any trouble bestowed on its preparation. The possibility of dispensing with the harassing guards which are requisite when the animals are sent out to graze would, in itself, be a boon to the troops, apart from the prospect of the animals being kept better up to their work than either on unaccustomed food, like grain alone, or on what they can pick up for themselves. Of the latter method the late General Sir Charles Napier once gave a graphic sketch, in his own pithy way. The camels, by all accounts, have been faring rather badly of late. Perhaps the present lull might afford opportunities for improvement in the direction suggested. A desire that the question may be better ventilated must be my apology for thus intruding on your space, and on the attention of those better qualified than I am to deal with such matters. H. M. C.

11*th March*, 1885.

* "Transport in Southern Afghanistan, 1878-80." By Lieut. S. S. Parkyn. Second edition. Liddell and Son, Bodmin, 1882.

THE MAYER FUND.

MR. CAMMACK, M.R.C.V.S., Cape Colony, has forwarded a contribution of £5 towards this fund. Application for it to be made to the Editor of the VETERINARY JOURNAL.

TO CORRESPONDENTS.

JUSTICE.—The evidence you bring in support of your charge against the gentleman you name is too slender to warrant the publication of your letter in our overcrowded pages.

G. S. A.—No good could arise from your criticism, which would appear trivial. We are all human, printers included.

COMMUNICATIONS from Messrs. Gresswell, Nunn, T. Campbell, Hoare, MacCallum, and others, together with the reports of the Lancashire, Liverpool, and Royal Counties Societies, are crowded out of this number, but will appear in our next.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from Messrs. Leather and Sons, Liverpool; J. S. Hurndall, Liverpool; "M.R.C.V.S.L."; A. Barron, Liverpool; T. Greaves, Manchester; R. H. Dyer, Limerick; E. Beddard, Wolverhampton; H. M. Singleton, Ealing; E. P. Evans, Cardiff; J. Cammack, Kimberley, South Africa; R. W. Burke, Cawnpore; Professor Walley, Edinburgh; "Experientia Docet"; H. Olver, Tamworth; W. Hunting, London; E. Kitchin, London; "G. S. A."; T. H. Lewis, Edinburgh; A. MacCallum, Edinburgh; "H. M. C."; T. Campbell, Kirkcudbright; C. Gresty, Newcastle-on-Tyne; J. Harrison, Burtergill; J. P. S. Walker, Oxford; E. W. Hoare, Montreal; J. B. Wolstenholme, Manchester; Messrs. Gresswell, Louth; H. Kidd, Hungerford; "F.R.C.V.S."; Professor Robertson, London; H. Dyer, Leatherhead; R. W. Knowles, Wisbeach; W. R. Davis, Isle of Man; G. Gartside Mayor, Kirkham; J. Mannington, Brighton.

BOOKS AND PAMPHLETS: *F. Eichbaum*, Grundriss der Geschichte der Thierheilkunde; *F. Negrini*, Del Fegato degli Animali Equini; *A. Miglioranza*, La Rabbia nell' Uomo e negli Animali; Indian Civil Veterinary Reports; *J. W. Hill*, The Diseases of Poultry; *Dr. J. M. Wehenkel*, Rapport sur l'Etat Sanitaire des Animaux Domestiques; *Paul Q. Karkeek*, Chaucer's Schipman and his Barge, "The Maudelayne"; Bulletin de la Société Royale Protectrice des Animaux; *J. M. Wehenkel*, Bulletin du Comité Consultatif pour les affaires relatives aux Epizooties et à la Police Sanitaire des Animaux Domestiques.

JOURNALS, ETC.: *Revista Popular de la Exposicion Rural; Tidskrift fâr Veterinar-Medicin; Journal of Comparative Medicine and Surgery; American Veterinary Review; Wochenschrift für Thierheilkunde und Viehzucht; Scottish Agricultural Gazette; British and Colonial Druggist; Lancet; Der Thierarzt; British Medical Journal; Live Stock Journal; Animal World; Mark Lane Express; Annales de Mêdicine Vétérinaire; Revue Vétérinaire; Repertorium für Thierheilkunde; Archives Vétérinaire; Archiv für Wissenschaftliche; Œsterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; Der Hufschmied; Chicago Live Stock Journal; Clinica Veterinaria; Edinburgh Medical Journal; Kansas Live Stock Indicator.*

NEWSPAPERS: *Edinburgh Evening News; Times of India; Madras Mail; Edinburgh Courant; York Herald.*

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

MAY, 1885.

RECORDS OF THE INTERNAL TEMPERATURES OF HEALTHY CATTLE UNDER DIFFERENT CONDITIONS.

BY PROFESSOR ROBERTSON, ROYAL VETERINARY COLLEGE.

WITHOUT entering into the question of either the value of a judicious employment of the thermometer as a means of determining the intensity of animal heat, or of the certainty or character of the influence, both in health and disease, which external conditions exercise over this state, I have thought it may be of advantage to place before others who may not possess the same opportunities, the results of extended observations on our larger ruminants, carried out with the view of determining the range of normal temperature under certain conditions. This I have been the more ready to do from seeing that, notwithstanding the numerous observations which have already been made, some, at least, of our professional brethren are yet rather undecided in their opinion as to the question of the internal normal temperature of these animals. The greater number of the observations tabulated here were made on two different occasions, at the Smithfield Club Show, held in the Agricultural Hall, Islington. The animals were all believed to be in the full enjoyment of health—certainly they were in full condition. Those made by Mr. Singleton were on ordinary dairy cows, part calved, and part in calf.

Table I.

Internal temperature of forty-three animals not over two years old.

a.m.	p.m.	Resp.	a.m.	p.m.	Resp.	a.m.	p.m.	Resp.
101·6	103·2	28	101·8	102·	16	102·5	103·0	24
101·6	102·8	32	102·2	103·	40	102·4	101 6	28
102·	102·8	26	102·	102.8	16	102·3	103·	28
103·	102·6	32	102·	102·6	42	103·4	103·2	27
102·	102·4	50	102·9	102·8	20	101·6	101·8	36
102·4	103·	32	102·4	102·4	55	102·	102·2	29
102·2	102·4	45	102·2	102·6	29	102·2	102·	53
102·	102·2	21	101·8	101·8	50	102·	102·	20
101·2	102·6	23	101·6	101·8	35	102·2	102·2	28
101·	102·	18	102·	102·4	27	101·4	101·6	18
101·6	102·6	36	103·	101·	14	102·	102·	23
101·2	101·8	28	101·4	102·2	28	101·8	...	44
101·	102·4	25	103·3	...	32	102·3	...	36
102·5	...	32	101·8	...	40			
102·1	...	48	101·4	102·8	60			

The highest reading in those forty-three animals is 103·9, the lowest, 101. The average of the forty-three taken in the morning is 102·05; of the thirty-seven evening temperatures, 102 39.

The number of respirations per minute varies from 18 to 60; the average of the forty-three animals being 31·98 per minute.

Table II.

Internal temperature of fifty-nine animals between two and three years of age.

a.m.	p.m	Resp.	a.m.	p.m.	Resp.	a.m.	p.m.	Resp.
102·2	102·4	42	102·2	...	36	101·8	102 6	37
101·8	102·6	30	101·2	...	40	101·2	102·	33
102·2	102·4	20	103·	...	52	102·	103·	26
102·	102·6	24	102·6	...	32	101·6	102·2	17
102·2	102·6	28	103·	...	20	100·	...	40
102·2	103·	30	102·6	103·	22	101·6	...	46
102·	102·5	30	101·4	102·7	16	102·1	...	50
101·6	101·	18	101·8	102·6	30	102 5	...	40
101·6	102·4	23	102·2	101·8	24	101·5	...	18
101·4	101·8	19	102·4	103·6	18	102·4	...	36
101·4	102·8	16	102·	102·4	18	102·6	102·6	20
102·	102·6	17	102·	103·2	20	101·8	102 2	18
102·4	102·2	11	101·8	101·	20	102·2	103·8	56
101·4	104·2	36	101·2	102·	40	101·6	102·3	42
101·6	...	37	101·6	103·	46	102·	102·4	28

a.m.	p.m.	Resp.	a.m.	p.m.	Resp.	a.m.	p.m.	Resp.
101·8	102·	32	101·2	102·8	25	102·6	...	34
102·	102·	24	102·2	101·	20	102·4	...	26
101·	102·2	21	102·2	102·8	18	102·	...	20
101·8	102·4	17	101·4	...	15	102·	...	24
101·8	103·	49	101·4	...	30			

Amongst the above fifty-nine animals, the highest thermometric reading is 103·8; the lowest being 100. The average of the morning temperatures of the whole fifty-nine is 101·87; that of the evening temperatures of forty-one, 102·3.

The number of respirations per minute varies from 11 to 56; the average of the fifty-nine animals being 28·42 per minute.

Table III.

Internal temperature of fifty-seven animals between three and four years of age.

a.m.	p.m.	Resp.	a.m.	p.m.	Resp.	a.m.	p.m.	Resp.
102·1	102 6	24	101·6	102·	20	102·	102·6	42
102·6	103·2	15	101·7	102·	28	102·	102·4	42
102·3	102·3	28	102·	102·	32	102·8	102·4	36
101·6	102·	34	103·2	104·2	23	101·8	102·	66
102·4	102·6	32	102·	102·	23	102·	102·6	41
102·2	102·6	34	102·4	102·8	49	100·8	101·8	14
101·6	102·4	20	101·6	102·	56	101·8	101·8	21
101·8	101·4	29	100·6	102 2	35	101·4	102·	28
101·8	102·	31	101·8	102·	44	101·6	101·8	22
102·	102·2	25	103·	104·2	13	103·	104·2	12
101·4	102·	18	101·8	102·	23	101·	102·2	46
101·4	101·6	27	102·	101·6	22	102·4	101·8	17
102·	102·	22	101·6	103 2	27	101·4	101·8	18
101·4	102·	30	101·2	102·	21	102·	101·6	23
102·	101·4	26	101·6	102·	22	101·6	100·	28
101·	100·	34	101·4	100·	29	108·2	...	28
101·5	...	16	101·3	...	40	102·	...	44
101·8	...	40	102·5	...	48	109·6	...	36
102·	...	40	101·6	...	28	102·6	...	50

Amongst the above fifty-seven animals the highest recorded temperature is 104·2; the lowest, 100. The average of the morning temperatures of the fifty-seven is 101·83, that of the evening of forty-seven, 102·11.

The number of respirations per minute varies from 12 to 56; the average of the fifty-seven being 30·2.

Table IV.

Internal temperature of fifty-two animals of various ages, chiefly over three years.

a.m.	p.m.	Resp.	a.m.	p.m.	Resp.	a.m.	p.m.	Resp.
102·2	103·	49	102·3	103·	28	102·3	102·	36
101·6	101·6	16	102·	102·6	18	101·8	102·	31
101·6	102·6	36	102·4	102·8	36	101·	102·2	20
100·2	101·8	36	101·4	103·4	45	102·2	103·4	14
101·4	101·	38	102·4	102·2	29	103·2	...	34
101··	101·6	27	102·	...	40	101·	...	28
102·	...	24	101·	...	25	102·	...	31
101·2	...	20	100·	...	40	102·	...	47
100·	...	40	101·	...	48	102·	...	42
102·	...	50	102·2	...	51	101·6	...	36
101·4	...	42	102·	...	40	104·6	...	40
102·6	...	44	103·	...	32	102·	...	24
102·5	...	32	102·6	...	36	102·4	...	48
100·	...	32	102·2	...	44	102·4	...	40
102·4	...	24	102·2	...	20	102·	...	28
102·6	...	44	100·	...	44	103·2	...	36
102·	...	36	103·	...	41			
102·6	...	30	102·	103·	20			

Of the fifty-two animals in the above table upon which observations were carried out, the highest recorded temperature is 104·6; the lowest, 100. The average of the morning temperatures of the fifty-two is 101·9; that of the evening record of sixteen, 102·2.

The number of the respirations per minute varies from 16 to 49; the average of the fifty-two being 34.

Table V.

Internal temperatures, etc., of forty-one animals of various ages, taken at the Smithfield Show, 1884.

Morning Record.		Evening Record.		Morning Record.		Evening Record.	
Temp.	Resp.	Temp.	Resp.	Temp.	Resp.	Temp.	Resp.
101·8	52	101·2	48	101·8	28	101·4	38
103·	16	101·2	40	102.2	48	101·6	50
101·6	26	101·8	46	101.6	94	101·4	66
101·6	42	101·4	92	101·4	30	102·8	88
101·2	32	101·4	38	101·2	50	101·4	92
101·8	48	101·4	40	101·	38	101·8	60
101·2	31	102·	22	101·	38	100·2	46

Morning Record.		Evening Record.		Morning Record.		Evening Record.	
Temp.	Resp.	Temp.	Resp.	Temp.	Resp.	Temp.	Resp.
101·6	88	101·6	64	101·8	58	101·8	48
102·	62	101·6	82	101·6	48	101·8	78
102·	54	100·8	52	101·6	32	101·8	52
101·6	52	101·6	68	102·2	20	102·6	92
101·4	44	101·4	44	101·6	106	101·8	50
101·4	46	101·	82	101·8	44	101·4	61
101·6	60	101·	58	101·2	44	102·2	66
102·	22	102·4	32	101·4	84	101·2	36
101·6	42	101·8	14	102·2	80	101·4	94
100 8	20	101·4	30	101·6	66	100·	72
101·2	46	101·4	26	101·8	56	101·6	86
102·2	50	102·2	84	101·4	54	101·4	64
101·2.	38	101·4	66	102·2	64	101·4	68
101·4	42	102·2	46				

Of the forty-one animals in this table, the highest noted temperature during the morning observations is 104·4; the lowest, 101; the average being 101·4.

The number of respirations per minute at the same period varies from 16 to 106, the average being 24·33. During the evening observations, the highest reading is 102·8; the lowest, 100; and the average, 101·04. The number of respirations per minute at the latter period varied from 14 to 94; the average being 29·03.

Table VI.

Internal temperature of 100 *dairy cows, taken by Mr. Singleton, Ealing, in March,* 1885.

101·1	101·3	101·	102·3	101·8	101·8	101·8	102·3
101·3	101·3	102·1	102·1	101·8	101·8	101·3	102·1
101·8	101·1	100·8	101·8	101·1	101·8	101·3	102·
101·	101·	102·	101·3	101·5	102·	101·5	102·8
101·5	99·8	101·8	101·8	101·8	101·1	100·5	102·3
101·3	101·	101·1	99·8	101·	101·	101·	101·3
100·8	101·5	101 5	101·1	102·8	101·1	101·	101·8
101·8	101·1	101·	102·	101·	100·5	102·3	101·5
102·1	101·	101·3	102·	102·	101·3	102·3	102·3
101·3	101·1	101·1	101·1	101·3	101·5	101·5	
103·3	101·1	102·1	101·8	101·8	101·3	101·	
101·8	100·8	102·2	101·3	101·8	101·3	101·8	
101·8	101·1	102·	101·1	102 1	101·8	101·8	

In this table the highest noticed temperature is 103·3, and the lowest 99·8. The average of the 100 cows is 101·5.

The above observations were taken on February 17th, 18th, 19th, and 20th, 1885. Before commencing, the thermometer was examined by Negretti and Zambra. The temperature was taken at the rectum, where the instrument was allowed to remain three minutes in each. Of these 100 cows, twenty-five were in calf; the others had calved at periods varying from two to eight months, and were in full milk.

Of the aggregate number of animals, cows and oxen, 352, upon which these observations were carried out, the highest thermometric reading recorded is 104·6°F., the lowest, 99·8; the average morning temperature over the whole being 101·65; while the average evening temperature, taken from over 200 animals, is 102.

The number of respirations per minute, recorded at the same time in 250 animals, varied from 11 to 106: the average being 30·25.

RHEUMATIC ARTHRITIS.*

BY T. CAMPBELL, M.R.C.V.S., KIRKCUDBRIGHT.

THE subject I have chosen for your consideration and discussion is Rheumatism. It is not my intention to enter into details, or to describe the different phases of Rheumatism; so I will confine my remarks to that form of this disease which affects joints, viz.:—

RHEUMATIC ARTHRITIS.

Acute Rheumatic Arthritis may be defined to be a constitutional, specific, inflammatory affection of the structures in and around the joints, and attended with considerable febrile disturbance; and never in the horse (that I am aware of) does it lead to suppuration.

We have a sub-acute form, which is manifested in a much less degree of intensity, and which generally follows upon the acute form.

To illustrate my subject, I will give you a sketch of a case

* A Paper read before the West of Scotland Veterinary Medical Society.

that occurred in my practice about twelve months ago. I may tell you I have had several cases both before and after this one, but not so acute.

The subject of this case was a valuable Clydesdale foal. My assistant visited the case first; and, considering it rather a serious one, he advised my attendance at once. I found the foal carrying the near hind-leg, the hock of which was considerably swollen and tender, the little patient evidently suffering great pain. Pulse increased, and of a hard, full tone; temperature, 103·5; respirations rapid; bowels inclining to be slightly constipated; the heart's action regular; and I failed to detect any abnormal sound.

On inquiring into the history of the case, I found the foal had been seen the night before, when it appeared in perfect health, but in the morning it was seen going lame on the near hind-leg, and it refused to drink. Having agreed to the mode of treatment to be pursued internally and locally, I requested my assistant to visit the case morning and evening, and report progress.

On the following day he reported to me that the case was progressing favourably, all the acute symptoms having disappeared, the patient walking pretty well, although the hock remained a little swollen. But the following evening I again saw the case, and to my annoyance found the off-hock similarly attacked as the near one. We pursued the same treatment, when the acute symptoms disappeared from this hock also; but on the following afternoon the foal was noticed to hang its head, and appear stupid and very dull. It gradually became worse; and when we visited it in the evening, we found it lying perfectly comatose, and in a short time it died without a struggle, the ultimate cause of death being Rheumatic Meningitis.

That Rheumatic Inflammation has a decidedly erratic disposition, must be admitted by all who have had a case under their treatment. It flies from joint to joint, or at last one articulation suddenly ceases to exhibit inflammatory symptoms, and another (probably the corresponding articulation) becomes as suddenly implicated, and this alternation may occur many

times during a single attack. A symmetry is often shown in the order of attack—the right hock, then the left; the right shoulder, then the left; and so on. It is a matter of astonishment to observe how quickly and completely the inflammation will subside in one joint before another may become affected. The hock, for example, in the case I have submitted to you, was one day found to be intensely hot and swollen, and so tender that the slightest pressure produced great pain; but, on the following day, scarcely any evidence remained of the animal's previous suffering.

As in some other diseases due to an altered condition of the blood, we also observe in Rheumatism a certain amount of symmetrical action. On reflection, it will be found that our surprise should rather be excited by a want of symmetry than by its occurrence; for, supposing that any morbid element has a peculiar attraction to any one joint (a hock for example), it is necessarily drawn to the second hock more powerfully than any other joint; or, supposing again that the circumstances in one particular joint more especially favour the development of any specific form of inflammation in it, the conditions of the corresponding joint on the other side of the body must do so likewise.

One of the most prominent constitutional symptoms in Rheumatic Arthritis is the temperature. Although the temperature in the case I have described to you never exceeded 104° F., still I have seen the temperature in other cases, with the acute symptoms less severe, reach 105° F. When I refer to Professor Williams's "Veterinary Medicine," I find he has known the temperature to rise to 109° F. in a cow with Rheumatism; also I see that Dr. Aitken, in his work on the "Science and Practice of Medicine," gives the temperature as high as 110° F. in cases complicated with severe Pericarditis.

Although in Rheumatism the temperature and febrile symptoms run very high, many of you, as well as myself, must have noticed that the frequency of the pulse is never greatly altered. Certainly the tone is always altered, being full and hard; but the frequency is never very much altered, unless we have serious pericardial complications.

Condition of the Blood in Rheumatic Arthritis.—Regarding this, I can say little, as I have not analysed or tested it in any way. So I can only repeat to you what I have been taught and what I have read. The majority of authorities on the subject agree that fibrine is increased in quantity, but somewhat altered in quality. Some believe in the presence of lactic acid; while others deny it.

The Urine.—I have frequently tested the urine, and have always found it neutral. It is generally high-coloured, and in the majority of cases scanty; and if so, we must necessarily have the proportion of solids increased, notably urea.

Morbid Anatomy.—The majority of cases recover, and I have had only once the opportunity of making a *post-mortem.* In this case, the hock was the seat of the inflammation. I found considerable effusion in the cellular tissue around the joint. The synovial membrane was much thickened, and quite red, accompanied with an augmentation and discoloration of the synovial fluid, and the articular cartilage had lost its normal shining appearance.

Pathology.—This subject I will not attempt to handle; but perhaps it will be advisable that I should quote to you some of the views held by high medical authorities.

One set of pathologists (amongst whom I may name Sir C. Scudamore and Cullen) look upon Rheumatism as simply an inflammation of fibrous and serous membranes, and make the following remarks:—"It may be stated that the predisposition to Rheumatism consists in a deficiency of healthy tone in textures connected with joints and muscles, and in nerves, so as to be affected in this peculiar manner by the influence of variable temperature. If we lose sight of the humoral term Rheumatism, we shall come to the simple fact that in a condition of susceptibility, cold or sudden reduction of temperature makes a particular impression on the vessels and nerves near the surface, and produces a painful affection of certain textures, which is attended with more or less inflammation, the phenomena of which are so far of a peculiar nature that we either consider the disease specific—inasmuch as the symptoms differ in their constituent character from those produced by other inflammations;

or we may view the effect in the light of common inflammation, modified, on the one hand, by the nature of the exciting cause — the external one, cold; and, on the other hand, by the particular species of textures which become affected."

A second set of pathologists consider the phenomena of Rheumatism as produced by the presence of some peculiar principle in the blood, either one altogether foreign to its healthy constitution, or an augmentation of some normal ingredient. Among these authorities, I see Professor Williams gives the names of Dr. Prout and Dr. B. W. Richardson, who hold that lactic acid is the principle in question: the latter authority having experimentally injected into the peritoneal cavity of dogs lactic acid, causing both Peri- and Endo-carditis. These experiments are certainly instructive; but some authorities of equal merit ask the question, "Might not the injection of acetic or formic acid produce the same result?"

On looking over my notes taken from lectures delivered by Professor McCall in 1863, I find he defines Rheumatism to be a constitutional, specific, irritative or inflammatory nervous affection, generally developing itself or attacking fibrous and serous membranes. Now this definition comprehends a great deal; and I cannot see that writers, even of the present day, have improved much on it.

Causes.—Pre-existing disease; hereditary predisposition; atmospheric influences; exposure to cold (especially after being heated); getting wet, and becoming chilled with a cold wind (thereby causing a sudden check to the functions of the skin).

Treatment: constitutionally.—In this disease, as in many others, too much attention cannot be paid to the general comfort of the animal. See that your patient is not only comfortably housed, but warmly clothed. Give a mild aperient, the strength of which must be regulated according to the condition of the bowels, the cathartic I prefer being aloes. If the fever is high, and the animal suffering acute pain from local lesions, inject subcutaneously Morph. hypoderm. three times daily. I may here mention that foals, like children, are readily affected

by the use of morphia ; so considerable caution should be used in its administration. Give salicylate of soda in a little milk. And in foals, when you have a high temperature, I strongly recommend the use of sulphate of quinine. At the same time prescribe for the mother a liberal amount of nitrate of potash in her food.

If my patient is over two years old, I always administer calomel and opium in the early stage, followed up with salicylate of soda. Give to drink new milk and barley-water, sweetened with a little treacle, to which add nitrate, or bicarbonate, of potash.

When we take into consideration the over acid and fibrinous state of the blood, it is quite natural and right to suppose that we should at all times administer alkalies ; and this line of treatment is not only recommended, but practised by the most eminent men in our profession.

Local Treatment.—In acute cases, where the inflamed parts are swollen and tender, I recommend continued fomentations, until the tenderness and pain are relieved ; then apply, for one or two days, Lin. sap. cum opii. After using this liniment for a day, I generally add to it half a dram to the ounce of Tinct. aconite. If the swelling is not entirely removed with this application, and the tenderness and pain gone, I at once apply to the part daily Lin. camph. co., until it becomes very tender, after which I apply lard or vaseline.

In Sub-acute Cases, I administer, internally, iodide of potassium and salicylate of soda, and to the water given to drink add nitrate of potash ; and, no matter what articulation is affected, I at once apply to it a mild *blister.*

Case No. 7.—From Notes.

Subject.—A valuable Clydesdale colt. Found to have become suddenly lame in the off hind-leg, and off his food. I was called in immediately the animal was observed not to be right. On examining the case, I at once came to the conclusion that the colt was attacked with Rheumatic Arthritis, accompanied with unusual high fever, indicative of pericardial complications.

COPY OF NOTES TAKEN FROM THIS CASE OF RHEUMATIC ARTHRITIS.

Date.	Temperature.	Pulse.	Remarks.
June 9.	104° F.	70	Respirations increased ; mouth dry and hot ; off hock slightly swollen and tender.
„ 10.	104°	68	Respirations not so rapid ; hock painful and tense, due to augmentation of synovia.
„ 11.	103·8°	66	Respirations nearly normal ; hock more swollen than yesterday—due to subcutaneous effusion; the animal is suffering less pain than on the 9th.
„ 12.	103°	60	Hock still swol'en ; pits on pressure, and not painful to the touch.
„ 13.	103°	54	The patient is feeding better, the effusion over the hock is becoming absorbed ; no lameness to-day.
„ 14.	103·5°	65	Considerable constitutional disturbance ; the animal is lame on near leg ; I cannot observe swelling in any of the joints.
„ 15.	103·5°	60	Without doubt the near hock is affected, and very painful on manipulation ; synovial capsule slightly distended.
„ 16.	103·5°	56	Near hock is now in a similar condition to what off one was on the 11th.
„ 17.	103°	56	All symptoms same as yesterday ; the joint, perhaps, is less painful.
„ 18.	102°	52	The hock is very much better to-day, pain gone, and swelling soft.
„ 20.	101·8°	52	The animal is walking very well, and the effusion is being rapidly absorbed.
„ 23.	normal.	50	I consider the patient convalescent.
„ 28.	103°	78	I have again been called in. Colt is shivering ; I have difficulty in making up my mind what is wrong.
„ 29.	104·5°	65	The colt is lame in off hind leg ; the synovial bursa of the patellar articulation is distended. It is evident I have a relapse.
„ 30.	104°	60	Stifle joint very much swollen and painful; the animal is not feeding, and restless.
July 1.	103·5°	63	The temperature is down a little, but generally there is no improvement.
„ 2.	102°	60	Marked improvement to-day; joint not so painful.
„ 3.	101°	56	The patient progressing favourably.
„ 5.	101°	54	Stifle joint still swollen ; animal lame.
„ 8.	normal.	48	Same as last visit. This is one of the worst cases I have had. From the attack until complete recovery took place, the animal suffered for a period of two months. The colt was a valuable one, and I was ordered to spare no expense as to medicine and attendance.

OBSERVATIONS ON THE TREATMENT OF TETANUS IN HORSES.

BY J. BRODIE GRESSWELL, M.R.C.V.S., LOUTH, LINCOLNSHIRE, AND ALBERT GRESSWELL, B.A., CH. CH., OXON., M.R.C.S.

(*Continued from page* 163.)

Hydrocyanic Acid.

Physiological Action.—Hydrocyanic, or prussic, acid is alike fatal to animal and vegetable life. In toxic doses it paralyses the cerebro-spinal axis, acting especially on the medulla oblongata and its respiratory centre. Death may be caused in two ways by this potent poison.

A large dose proves fatal in the course of a few seconds. The animal falls as if struck by lightning, and the pupils are widely dilated. The heart and the nerve centres seem to have their functions arrested simultaneously.

A smaller but fatal dose causes death by paralysis of respiration. The breathing becomes slow and gasping, the heart's action and pulse almost imperceptible, and consciousness is lost. In many cases death is preceded by suffocative convulsions. The dyspnœa is due to two causes, viz., to the paralysis of the respiratory centre in the medulla oblongata, and also to the fact that prussic acid combines with the hæmoglobin of the red corpuscles, thus, probably, interfering with the giving-up of oxygen to the tissues.

The toxic effects of prussic acid are observed in all animals, by whatever way the poison enters the system.

Value of Prussic Acid in Tetanus.—We believe that we are correct in stating that hydrocyanic acid has had a more extensive trial in the treatment of Tetanus than almost any other remedy; yet there is as much diversity of opinion as to its efficacy in this disease as there is about the precise mode of its physiological action.

Mr. D. Gresswell prescribed this acid in a large number of cases, and was of opinion that, although a useful remedy, it could not be relied upon in any doses in severe cases. Our own experience also, and that of Mr. Charles Gresswell, of Notting-

ham, does not lead us to regard it as of the same efficacy as aconite, tobacco, morphia, or chloral hydrate.

Finlay Dun, in his "Veterinary Medicines," says: "Mild cases of Tetanus, especially in young animals, are sometimes benefited; but it is of little use in aggravated cases or in aged animals."

Professor Williams, in his "Veterinary Surgery," says: "The prussic acid treatment, so highly recommended by Mr. Lawson, of Manchester, has with me proved to have no special superiority."

Viewing the question from an etiological and physiological point of view, one would not have great faith in the value of prussic acid in the treatment of this disease. At the same time, it is of undoubted power in reducing the severity of the spasms of Tetanus; but the administration must be repeated pretty frequently, as its soothing effects, though probably not nearly so transient as those of physostigmine, do not last very long. Of the value of the cyanides in Tetanus, we have no experience.

Opium and Hydrochlorate and Acetate of Morphia.

Physiological and Therapeutic Action.—We do not purpose to enter fully into the physiological and therapeutical properties of opium and the salts of morphia, as these are so well known to all; yet a few words may, perhaps, recall to the memory some of the more important facts of the actions of these much used and valuable remedies, bearing more especially on the disease in question. It will be best to treat of opium and its alkaloids together, as the latter have the same properties as opium in a concentrated form, being, however, less exciting and stimulating, and also less diaphoretic and constipating. Opium acts on the cerebro-spinal and on the sympathetic systems, and when given in full doses causes stimulation, followed by depression.

The following conclusions and experiments are derived from Dr. Harley's investigations. The soporific effects of opium result from the action on the cerebral hemispheres, and the excitant from excessive stimulation of the corpora striata and spinal cord. The acceleration of the heart is viewed as partly due to direct stimulation of the sympathetic nerves, and partly to an indirect

stimulation of the same centres, resulting from the excitement of the muscular movement.

Dr. Fothergill ascribes the soporific effects of opium as due to the anæmia of the brain and diminished activity of the cerebral cells, said to be caused by opium and its alkaloid, morphia.

Poisonous doses of opium cause death, by cessation of the respiratory movements. In a case where one ounce of powdered opium, dissolved in water, was given to a strong, healthy cart-horse, the pulse fell from forty-four to thirty-four beats per minute, the superficial muscles were relaxed, the nasal mucous membrane blanched, and the animal was dull and dejected.

After half an hour, four drachms, also dissolved in water, were given, and the dulness and the weakness of the pulse, which had now fallen to thirty-two, was increased.

Half an hour later, the animal, continuing in the same condition, was destroyed.

In animals poisoned by opium, the ventricles of the brain and the subarachnoid spaces contain more fluid serum than normal. There is general venous engorgement, and the right side of the heart is distended by soft coagula.

Value of Opium and of the Salts of Morphia in Tetanus.—As with so many of the remedies mentioned, there is great diversity of opinion regarding the beneficial action of opium and morphia in Tetanus. Finlay Dun writes: "Tetanus occurring in young animals from exposure to cold, is often treated successfully by opium, especially when conjoined with chloral hydrate or conium; whilst, in the more serious cases amongst adults, spasms and morbidly acute sensibility have been removed for several hours by the hypodermic injection of morphine deeply inserted into the tetanised muscles." Many practitioners, on the other hand, rarely or never prescribe opium, having but little faith in its value in this disease. Mr. D. Gresswell believed opium to be of great value; and we also are of opinion that the hydrochlorate of morphia, injected hypodermically, is one of the most powerful remedies we have in combating the severity and the length of duration of the paroxysmal seizures.

Mr. Charles Gresswell, of Nottingham, who has a large experience of the administration of morphia hypodermically in

Tetanus, believes that, with chloral hydrate and tobacco, this treatment is as efficacious as any combination of remedies with which he is acquainted.

We believe that the value of morphia in Tetanus is hardly sufficiently appreciated by some practitioners, and we are of opinion that it would, perhaps, be more extensively administered than it is, if its value in combating spasmodic seizures were more generally recognised. It has been pointed out, however, that horses, like men, show great differences in their degree of susceptibility to the action of opium, and this may, in some degree, account for the diversity of opinion as to its value.

Thoroughbred horses are more easily brought under its excitant action, whereas cart-horses more readily under the soporific effects.

When morphia does act beneficially in Tetanus, the duration of the effect is more lengthened than with several of the other remedies mentioned, and it does not, as physostigmine sometimes does, cause still more exaggerated seizures when the transient calm produced has passed over.

That horses will take very large quantities of opium, and still not succumb, is shown by the following case, which we quote from our "Manual of Equine Medicine" (page 365):—

"A few weeks ago, we were called in to see a black mare, aged eight years, to which the owner had administered one ounce and a half of Turkey opium. When seen on the day following the administration of the drug, the mare was found to be in a very dull, dejected condition; the pulse was very feeble and soft, and the artery very compressible. The number of beats was eighty-four per minute, and the temperature reached 102·5. The pupils were contracted, and there was total loss of appetite, the mare refusing all food and drink. The breathing was slow, but not stertorous, and the nasal mucous membrane was highly injected. The symptoms continued unabated for three days, during which time the animal moved round and round in the box. On the fourth day the pulse began to regain vigour, but recovery was not complete before the lapse of a week."

Caustic Potash, or Hydrate of Potash, and Bicarbonate of Potassium.

Physiological Action and Value in Tetanus.—Experimental research on animals has shown that the potash salts, when introduced immediately into the blood, are very poisonous, and this effect appears to be due to the base, and to be independent of the acid with which it is associated (always excepting such compounds as, *e.g.*, the cyanides, whose specific action is that of the combined acid). In cold-blooded animals the salts of potash, even in small doses, cause gradual but complete paralysis of the voluntary muscles, and finally of the heart, which ceases to beat in diastole, and no longer responds to irritation. In warm-blooded animals, the arrest of the heart is preceded by dyspnœa and convulsions. It is not certain whether the paralysis is due to some action of the salt on the nervous system, or on the idio-muscular contractility. Small doses raise the blood pressure in the systemic arteries, and slow the heart; poisonous doses cause immediate paralysis of the heart, and a sudden fall of blood pressure.

A very simple experiment, which we had the opportunity of witnessing in Leipsig some time ago, will serve to illustrate the poisonous character of the salts of potash as compared with that of sodium. Professor Ludwig, having secured a good-sized frog, washed out the blood, and injected into the veins of the animal a weak solution of chloride of potassium. Death very soon followed; but when chloride of sodium was substituted for chloride of potassium, the animal continued alive for some length of time after the performance of the experiment.

But, in addition to their sedative powers, the hydrate and the bicarbonate of potash have, in common with the sodium analogues, distinct antacid powers; and it is on account of these antacid properties that they have been so largely employed in rheumatic affections. The amount of alkali contained in solution of caustic potash, in medicinal doses, is small, and therefore its antacid powers are not very great. After absorption into the blood, free potash is said to increase the change of tissues in the body; and hence it is an alterative. It renders the blood more alkaline,

and is said to make the fibrine less plastic. Carbonate and bicarbonate of potash, similarly, are direct antacids; but they have not the sedative action on the mucous membrane of the stomach which the hydrate has. They are readily absorbed, and may be given in large doses.

According to Dr. Guttmann, poisonous doses of potassium salts paralyse the spinal cord and heart, depress or destroy the functions of afferent nerves, lower blood pressure and temperature, and cause muscular weakness, affecting first the hind extremities. They do not appear to act upon the muscles or peripheries of nerves.

We believe the hydrate or the bicarbonate of potash to be of great value as an adjunct to other remedies in the early stages of Tetanus, and we were first led to employ these remedies as adjuncts, from the impression that the acid products of muscular contraction, accumulating in the system, would tend to become neutralised in some degree by their injection. But we have never employed more than the ordinary doses, and have generally used the hydrate, given in the gruel, though we believe the bicarbonate to be perhaps as likely to do good. We do not, however, believe that the beneficial action of the potash salts depends altogether upon their antacid properties, but also upon their sedative properties, regarding which the above is a short abstract.

We do not believe the potash salts (except the bromide) have been much used in the treatment of Tetanus, but we think, from experience in several cases, that they are worthy of still further trial as valuable adjuncts, more especially in the early stages.

We may conclude our observations on the potash salts, by quoting a passage from our "Equine Medicine" regarding some physiological points of importance in the study of the phenomena of muscular contractions :—

"If a nerve-muscle preparation be carefully made and preserved, and the nerve be irritated in any way whatever, the muscle will respond to the application of this new incident force by an aggregate of changes which are collectively spoken of as a contraction.

"Further, if during the period of the maximum intensity of the contraction another equal stimulus be applied, the additional response will be nearly equal to the first.

"A lever suitably attached to the muscle will be raised very nearly as much again, and the amount of the two contractions will be nearly twice that of the first alone. If more stimuli of equal intensity be successively applied with each subsequent irritation, the amount of the consequent contraction becomes gradually less, until at length, when the stimuli reach a certain number in a given time, the lever is not raised higher, but the component contractions are apparently united, fused, as it were, to form a single continuous uniform contraction, and though really still existing, are not to be indicated by ordinary instruments.

"This condition of a muscle, which is called Tetanus, may be produced by the interrupted current, or by any rapidly repeated shocks. The frequency of the stimuli needed to produce Tetanus varies in different cases.

"'Kronecker and Stirling find that ten stimuli per second will cause complete Tetanus in the red muscles of the rabbit, whereas the pale muscles require at least double that number.

"'When the stimuli are repeated more frequently than is required to bring about a complete Tetanus, the constituent contractions are still proportionately increased in frequency. This is shown by the increased pitch of the muscular sound.

"'Kronecker and Stirling, by using a special instrument for rapid interruption, the so-called tone inductorium, have been able to obtain in all cases a complete Tetanus with alternating induction shocks, even when repeated, they believe, as frequently as 22,000 times a second' (Foster).

"Thus it appears that the number of constituent contractions which may coalesce to form a Tetanus is very great indeed, and we can only conclude from this that in the disease where so many muscles are involved, the expenditure of force entailed is enormous, even if we suppose that the spasms are not of a very complex character—that is, are not constituted by a large number of component contractions.

"Every time a muscle contracts there is an expenditure of

energy. Work is done ; force is supplied, directly or indirectly, by the dissociation of highly complex organic compounds, of whose nature little is known, and thus waste products are produced."

Quinine, Salicine and Salicylate of Sodium, and Salicylic Acid.

Physiological Action and Value in Tetanus.—Quinine has a powerful sedative influence upon the spinal cord and brain, diminishing, and finally abolishing, reflex movements. It lowers the heat of the body in healthy animals, but this action is most manifest in the pyrexia artificially induced by the injection of putrilage into the circulation. It is probable that this effect is due to the *checking of oxidation within the organism.*

We have administered quinine, with salicine, in some cases of Tetanus, and believe it to have a beneficial action in this disease. Mr. D. Gresswell also administered quinine sulphate in several cases of this affection, and never observed any ill effects attending its administration. He, too, administered the quinine along with salicine. The effects of salicylic acid closely resemble those of quinine, but it is more depressing in its action than salicine, and is less rapidly absorbed than the salicylate of sodium.

Tobacco and Nicotine.

Physiological Action.—Nicotine causes in frogs Tetanus and general paralysis. In warm-blooded animals there occur twitchings and tetanoid convulsions, excited by the slightest stimulus.

It tetanises by its action on the cord. It paralyses the cord and motor nerves (Vulpian, Rosenthal, Krocker), the peripheral nerve-endings being first affected ; it also paralyses the muscles (Rene). The brain is unaffected (Ringer's " Therapeutics "). It also appears to tetanise the heart, and kills by arrest of respiration.

In medicinal doses, tobacco causes motor-depression and muscular relaxation. As a motor depressant, it is said to be allied to pituri, to hemlock, and to lobelia inflata, or Indian tobacco. Calabar bean and prussic acid are more immediate and direct depressors of the cord.

Value of Tobacco and Nicotine in Tetanus.—Both tobacco and nicotine $C_{10}H_{14}N_2$ have been extensively administered in Tetanus in horses and in the human species.

In man, nicotia has been highly lauded for this disease, and many cases seem to show its beneficial action. It must be given in man either by the rectum or hypodermically, as when put into the mouth it very generally excites a severe paroxysm, which may destroy life, by firmly fixing the muscle of the chest, till Asphyxia is produced.

In the horse, tobacco has been given by the mouth in the form of powder, by the rectum as an enema, and hypodermically as nicotine. Mr. D. Gresswell believed tobacco to be one of the most valuable remedies of the pharmacopœia in the treatment of Tetanus, and latterly he used it in almost all cases. Our experience also of the use of tobacco, in different forms, is very satisfactory, and we nearly always prescribe it now. Mr. Charles Gresswell, of Nottingham, has also found tobacco to be one of the most efficacious remedies as yet advocated for the treatment of Tetanus, and many other practitioners are also satisfied of its power in restraining the violent spasmodic seizures and of curtailing their duration.

Conclusion.

We have mentioned incidentally, in treating of the value of the several remedies, the ones on which we are disposed to have the most reliance in Tetanus, and we shall therefore not take up further space by repeating our opinion. But we should state that our deductions are drawn from a very careful analysis of more than two hundred and ninety cases of Idiopathic and Traumatic Tetanus, which have occurred in the practice of the late Mr. D. Gresswell, in our own practice, and in that of Mr. Charles Gresswell, as well as in that of other practitioners, who have either called in Mr. D. Gresswell, or have made known to us the special treatment adopted and its result. There is no doubt that rest and general management of the cases of Tetanus have a large part in determining the result, quite apart from the combination of remedies employed; and it is well known that some cases are from the first of so severe a nature that all treatment and care prove utterly unavailing. We believe that the largest per-

centage of cures may be expected where greatest care is taken, and a judicious combination of the most efficacious remedies administered.

We may, in this connection, mention that our analysis of the above cases leads us to have no faith in the efficacy of conium, conia, and but little in that of belladonna, atropine, and cannabis Indica.

We are disposed to regard nicotine, tobacco, morphia, aconite (in the early stage of severe cases especially), chloral hydrate, and hydrocyanic acid, as among the most efficacious remedies, and, as an adjunct, we value potash highly, as also, in some instances, the inhalation of chloroform.

We have little faith in physostigmia, as its effects are very transitory, while of amyl nitrite our experience is too limited to speak with any authority. Regarding the treatment of injuries, we believe authorities are agreed, excepting in cases of Tetanus following decking. It was the practice of Mr. D. Gresswell to re-dock in all cases following this operation.

We ought *to mention* that the bowels were kept open in the above cases by the administration of calomel, and in some by small doses of aloes in the first instance. Finally, we should add, knowing that the alkaloidal salts and other preparations vary much in their quality and strength, that we obtain a large number of our drugs from Messrs. Wright, Layman, and Umney, whose preparations are always of first quality and thoroughly reliable.

RUPTURE OF THE RECTUM IN A THOROUGH-BRED BROOD MARE.

BY A. J. MAC CALLUM, M.R.C.V.S., EDINBURGH.

An urgent messenger came for me on the evening of March 4th, requesting me to at once visit a thorough-bred mare belonging to a client of mine (Mr. Y——, of B. B.), which was said to have been ill for four or five hours, and suffering great pain. I went off immediately to the place, which was about four miles away. On my arrival I learned that the mare was

nine months gone in pregnancy ; had been in her usual health till about midday, when she was noticed getting up and down, and, seemingly, in pain. Thinking she was only slightly griped, they took little notice at first.

I found the mare in a loose box. She was looking very haggard, trembling a little ; legs and ears cold ; mouth clammy ; mucous membranes pale ; a running-down pulse, and abdomen slightly tympanitic. She looked wistfully round at her flanks, pawed a little, and seemed to have great pain. I at once gave her a powerful anodyne draught to relieve her pain, while I proceeded with my examination and inquiry as to her history. I learned that she had been used as a brood mare, and the dam of a good stock ; that she had always been healthy up to that day. She had been getting the usual food, viz., corn and hay, and a little boiled food at night ; that she was led out every day for exercise. While being led out that morning she seemed duller than usual, but showed nothing calling for special notice. I also learned that she had got a fright about ten days previously, when going out at the stable door, and had an ugly fall. She got up and walked away, seemingly none the worse, and those who saw it thought no more about it. I attached great weight to the fall, and proceeded with my examination. I found on passing my hand along the vagina, to ascertain the condition of the uterus, the os dilated sufficiently to admit my three fingers ; the animal strained a good deal while I was doing so. I next passed my hand into the rectum. I found the passage loaded with rather dry, broken fæces, which I proceeded to remove. I had cleared out the passage to the extent of twelve inches or so. To my horror, I found the bowel was quite ruptured, and only attached by a mere rag of membrane on the left side at the part indicated. The fæces were quite filling up the pelvic cavity. I cleared it away, and everted the free end of the bowel, which I found bore traces of having been badly bruised, and seemed as if it had been rent. I then proposed to myself what I could do for the best, in the circumstances. My first idea was to make a new attachment for the free end of the bowel within the sphincter, but finding the fæces all scattered about within the abdomen, I

concluded that would be useless. I told my client that the mare's case was hopeless. He inquired whether nothing could be done to save the foal. I answered that seventh-month children often lived, and did well. If the fœtus was still alive, it might be worth the experiment to try and save it. I found on examination that it was all "alive and kicking." I at once put the mare under the influence of chloroform. When I had her completely under it, I made a smart section along the linea albi, released a very handsome colt foal from the womb and its appendages, rolled it up in a hot blanket, and carried it away to the front of the kitchen fire, giving orders to have the mare at once destroyed by a knock on the head, which was done. The foal was comatose for five or ten minutes, when it became all right. It seemed much finer in the coat than a full-matured foal; otherwise it looked very well. I gave directions about its maintenance. I have since learned that it only lived three hours. I made a *post-mortem* examination of the mare. This revealed nothing but the peritonitis and the rectum much discoloured. All the other organs were quite healthy.

As I am rather in a difficulty about the cause of the rupture, I submit the above particulars in the hope that some of our learned friends will clear it up.

I am of opinion that it was caused by the fall at the stable door ten days previously. But, then, how did the animal continue to eat her usual food, take daily exercise, pass fæces, micturate, and seem otherwise in good health for the intervening ten days between the accident and the fatal illness on the day of my visit?

COCAINE IN VETERINARY SURGERY.

BY G. GARTSIDE MAYOR, M.R.C.V.S., KIRKHAM, LANCASHIRE.

NEW appliances are too frequently either regarded askance, or extravagantly lauded. Perhaps I may be accused of the latter, but as I have recently used this alkaloid with the most complete satisfaction, I lay my experience of it before the profession, and shall be only too glad if these few remarks may induce other veterinarians to give it a trial, when they will, I feel sure,

endorse Mr. Whitfield's opinion—that it "supplies a long-sought requirement."

My attention was called some weeks ago to a shorthorn cow, that had "something growing in her eye." On examination, I found a fleshy-looking tumour, *apparently* about the size of a Spanish nut, in the inner canthus. As the beast was not far from calving, I recommended palliative treatment for the time being, proposing to cast my patient after parturition, and operate under chloroform. Meantime I heard of Cocaine, and having procured some from Messrs. Hewlett, I tried a small quantity in the eye of an old pony of mine, and subsequently on the inner surface of my own lip; in each case producing entire local anæsthesia. I therefore recommended the trial of it to my client, who at once consented. In the interim the pterygium had largely increased in size, and now extended almost the entire length of the free margin of the lower lid, causing a great deal of irritation and discharge.

Having secured the animal's nose with "bull-dogs," I painted the whole surface of the eye and lids freely and repeatedly with a five per cent. aqueous solution of Cocaine. As soon as anæsthesia was thoroughly established, I passed a suture through the tumour as low down as I could; this unfortunately tore out, but not before I had time to see that the morbid growth extended to a considerable depth.

I then seized it with the forceps, and succeeded in snipping off some portions with curved scissors; then, by pressing the eyeball gently back in the orbital cavity, I was enabled to firmly grasp the base of the tumour, and finally excise it. During the whole course of the operation, the animal only gave occasional slight evidences of uneasiness. Free fomentations and anodyne collyria were applied, and the eye shielded from the light.

There was considerable tumefaction of the eyelids and opacity of the cornea for some days, the result of the somewhat protracted manipulation, as also a purulent discharge, but these symptoms soon subsided.

I look upon this case as a severe, and most satisfactory, trial of Cocaine. Without it, operation would simply have been impracticable, except with the aid of chloroform.

The extremely high price of the drug—two shillings per grain—is unfortunate; still the cases requiring it are not of every-day occurrence, and so far as my first experience justifies me in pronouncing upon it, the expenditure is far more than repaid by the satisfaction attending its use.

I sent some portions of the growth to the Brown Institution for microscopic examination.

Editorial.

THE FELLOWSHIP DEGREE OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

It is now nine years since the Council of the Royal College of Veterinary Surgeons applied for, and obtained, a Charter, empowering the Body Corporate to hold its annual meetings in London, Edinburgh, or Dublin, to remove the names of members from the register, to appoint a Registrar and Secretary, to hold land, and more especially to grant the higher degree of Fellow to members on certain conditions, as also the right to confer the degree of Honorary and Foreign Associate of the College. From the prominence given to the Fellowship degree in this Charter, it would almost appear as if it had been the chief object desired in asking for such an instrument; and there can scarcely be any doubt that this was so For a very long time it had been felt by those who aspired to see the profession on a higher and a more progressive footing, and more closely assimilated to the professions of medicine and surgery, that a superior degree to that of member should be instituted, in order to engender a spirit of emulation, particularly in the younger members, and induce them to continue those studies which they had commenced at the veterinary schools, and the continuation of which is really absolutely necessary, if progress is to be maintained and advantage taken of increasing knowledge and new discoveries. Hitherto, there had been no material inducement for any member to work in this direction; for after receiving the diploma of membership, nothing more could be obtained to mark further progress, or to show that the elementary knowledge gained through the aid of teachers had been largely added to by individual labour and acquirement, and more or less perfected by practical experience gained in the everyday round of business. It was considered that it would be the laudable ambition of a large majority of members to raise themselves to the higher level in the course of time, and thus testify to the world that they did not become recipients of the membership diploma from mere mercenary motives, but from a deep regard for science and humanity, and a determination to enhance the value of their services to the public.

We are inclined to believe that it was this praiseworthy impulse which mainly prompted the Council to apply for the Charter alluded to, and

that led to strong hopes being entertained of great advantages resulting from its obtainment. But it was evidently felt, also, that members who had laboured to qualify themselves for the higher degree, and by their merits had achieved it—while by so doing they had given proof of their zeal and ability and loyalty to their calling—deserved to have privileges and rewards which those who had not qualified themselves could not claim, and which the Fellows had demonstrated they could put to the best use for the benefit of the entire community. It was consequently enacted in the Charter that none but Fellows were to be eligible as Members of Council or to serve on Boards of Examination ; but, in order to give ample time for the profession to adapt itself to this new order of things, it was also ordained that this change was not to take place until the end of ten years from the date of granting the Charter. This long interval was supposed to allow a large number of members to avail themselves of the degree, by giving them opportunity for study ; for it was stipulated that no member could be admitted a Fellow until he had attained the age of twenty-six years and practised his profession, or been a Professor in a Veterinary School, for not less than five years. In order to institute the degree, it was likewise ordained that within six calendar months the Council was to elect, without any previous examination, not more than five per cent. of the whole number of the Body Corporate, those so elected having been in practice for at least fifteen years. The grounds for such election were left to the Council to determine, and we believe within the time specified the percentage fixed upon formed what may be designated the Foundation Fellows. It is needless to discuss these grounds of election, or selection, as they will be found in the Proceedings of Council for 1876. Suffice it to say that these Fellows did not elect themselves, as has been stated, their election being made by the Council, the then members of which were exempted from the exclusion which was to apply to the non-Fellows. Certain fees had to be paid by the Fellows—ten guineas by those elected by the Council, and fifteen guineas by those admitted Fellows by examination. All this was done with the full cognizance of the profession at large, and, we believe, also with its full consent and approbation. At any rate, we do not remember hearing of any complaints as to what had been done, or any protests as to unfairness or impracticability. It was necessary to have Foundation Fellows ; and that they were admitted without examination could scarcely be a cause for contention, inasmuch as there was no Board existing which could be said to be competent to examine them ; and from their having been in practice for such a long period, their eligibility for the honour of election was well known. Since the Charter was obtained, a number of candidates for the degree have been examined, and nearly all who have presented themselves have been admitted, some of these having been members for several years before the Charter was obtained, and others entered since. We have reason to believe that the examination has not been very exacting upon the former, nor yet particularly severe for the latter ; as it was felt that allowance should be made for those who had not sufficient time to prepare for what was a novel and unexpected ordeal—the object being rather to make the examination gradually of a

stringent and searching nature as years went on. There has been no attempt or desire whatever to exclude those who could satisfy the Examiners that they possessed a fair general education, and a sufficient knowledge of their profession to enable them to sustain the dignity and reputation of the degree.

In another year, the ten years *interregnum* will have expired, and the exclusive privileges belonging to the degree will come into operation. But in certain quarters an agitation is being stirred up against this exclusiveness, and efforts are being made to have this particular enactment of the Charter rescinded. Such agitation would be quite justifiable if it could be proved that the interests of the profession or the public would in any way suffer from the operation of the Charter; but this has not yet been shown. There has been no prohibition or obstacle thrown in the way of members availing themselves, in unlimited numbers, of the opportunity for obtaining the degree during the nine years that have elapsed since the Charter was granted, and it was well known, we fancy, that the severity of the examination was more prospective than actually existing. That more have not availed themselves of the degree is a matter for regret, and those who anticipated that it would have been more popular must feel greatly disappointed. It will now be a very lamentable and humiliating confession of professional apathy and lukewarmness if it should be decided to apply to the Government to cancel this provision of the Charter, on the plea that the degree has failed to elicit the aspirations of the profession towards a higher standard. It is evident that on taking the degree and paying the fees, those members who became Fellows entered into a contract with the Royal College by which they were entitled to certain specified privileges. If the contract is to be broken by the abrogation of these privileges, then, we fancy, those who are legally-minded would be ready to assert that the fees they paid should be returned to them.

We do not enter into a discussion as to the hardship or injustice of excluding members from the Council or Boards of Examination, as that should have been thought of when the Charter was applied for, or subsequently; while the remedy has always been in the hands of those who did not desire such exclusion. There are at present sufficient Fellows to carry on the duties for many years; and the evidence as to their competency and willingness to undertake these duties is shown in what they have already done in this direction, though they have never put forward any claims to superiority, or flaunted the higher degree aggressively or conceitedly in the face of those who did not possess it.

It is earnestly to be hoped that no change will be made detrimental to the honour, dignity, or good name of the profession in this respect, but that a means will be found for maintaining the degree in its entirety, and to render it, if possible, more attractive and praiseworthy, if need be. Our advancement is largely dependent upon the inducements we hold out to those among us who, possessing ability and vigour, yet require a stimulus to work, and some proof to show that they have worked. It is the hope of reward that sweetens labour; and as the rewards our poor profession can offer are few indeed, it would be a pity if they were dimin-

ished by the profession condemning the action it took nine years ago, committing a breach of contract with those of its number who have shown the best possible spirit towards its advancement, and bringing ridicule upon itself by confessing that it has no desire or ambition to testify that it can get beyond the degree awarded to a three-years' student.

MEAT INSPECTION.

WE have for years insisted upon the necessity for employing only competent veterinary surgeons as flesh inspectors, instead of medical men and others who are unfitted for such an important duty. In many of the Continental States this necessity is fully recognised and acted upon, and the inspectors of butchers' stalls and abattoirs are well-trained veterinarians. Spain is a country which is supposed to be rather backward in sanitary affairs, but now it is ahead of us in this respect. The *Lancet* informs us that the veterinary surgeons of the province of Cordova, having complained to the Spanish Royal Council of Health because the local authorities had appointed as inspectors of food two medical men, instead of members of their own body, whom they considered best fitted for such duties, the Royal Council replied that there was no doubt that veterinarians ought to be appointed to inspect meat, but that there was no law, and not even a uniformity of custom, concerning the appointment of inspectors of other articles of food. It was, however, a subject which ought to be settled, and therefore the Council resolved to advise the Government to make the following regulations :—(1) That the inspection of warm-blooded animals, alive or dead, fresh or preserved, should be exclusively in the hands of veterinarians ; (2) that the inspection of all other articles of food sold in markets, including cold-blooded animals, should be committed indiscriminately to medical men or to pharmacists ; (3) that both classes of inspectors be irremovable from their posts, except for grave cause. The Royal assent was given to the above-mentioned recommendations, which have just appeared in the *Official Gazette*.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

MEETING OF COUNCIL, HELD APRIL 7TH, 1885.

Mr. H. J. CARTWRIGHT in the chair.

Present :—Sir F. Fitzwygram ; Professors Pritchard and Robertson ; Messrs. Wragg, Perrins, Dray, Whittle, Woods, Simpson, Greaves, Taylor, Santy, Cartledge, Cox, Cartwright, and the Secretary.

The SECRETARY read the notice convening the meeting.

Letters regretting their inability to attend the meeting were read from the President and Messrs. Blakeway, Borthwick, and Simcocks.

The minutes of the previous meeting were taken as read.

Correspondence.

A diploma was signed in favour of Mr. J. D. Rose, holder of the Highland and Agricultural Society's certificate.

A letter from Mr. James Mills, V.S., of St. Thomas's Mount, Madras, relating to the educational question, was ordered to be laid on the table until a further reply was received.

A letter was read from Mr. S. W. Vines, of Tunbridge Wells, requesting assistance. The Secretary was directed to reply that the Council were unable to assist him.

Examinations.

The Report of the Examinations in London and Scotland was read.

The SECRETARY announced that the Royal Agricultural Society's silver medal had been awarded to Mr. F. T. Harvey, and the bronze medal to Mr. C. Heinemann.

House and Building Committee.

This report was read, showing that an estimate for rebuilding No. 10, Red Lion Square had been accepted, at a cost of £2,675 ; also that part of the furniture, specimens, books, and papers had been warehoused.

A letter was read from Professor Walley suggesting that a foundation-stone should be laid for the new building on the day of the annual meeting.

Mr. DRAY, speaking as Treasurer of the College, protested against any expense being incurred in connection with laying the stone. The College, he said, must husband their resources as much as possible.

Mr. SIMPSON thought it advisable to have the ceremony of laying the foundation-stone on the afternoon of the day of the annual meeting.

Several members approved of the ceremony taking place.

Mr. CARTLEDGE proposed that a circular be sent out along with the report of the annual meeting, containing an announcement that the foundation-stone would be laid in the afternoon.

Mr. PERRINS seconded the motion, which was agreed to.

Registration Committee.

The SECRETARY read the Report of the Registration Committee, and informed the Council that a practitioner had been struck off the list through obtaining registration under false pretensions.

Finance Committee.

The Committee reported that the purchase of the redemption of land-tax of No. 10, Red Lion Square had been effected for the sum of £110 10s.

On the motion of Professor PRITCHARD, seconded by Mr. SANTY, the report was received.

Mr. TAYLOR proposed that the balance-sheet be passed, and the cheques drawn for the liabilities.

Mr. WOODS seconded the motion, which was agreed to.

The Report of the Dinner Committee was read.

The REGISTRAR read the Obituary Notice.

Mr. WRAGG said the National Veterinary Association were very anxious to fix the date of their meeting, and in order to prevent its clashing with the examinations, he wished to ask when the summer examinations would take place.

The SECRETARY said he thought the best time would be about the latter end of July.

Professor PRITCHARD thought the time had come when the date of the examinations should be permanently fixed, so that the Examiners might know when their services would be required.

The SECRETARY said he could not summon the Examiners until he knew the exact number of candidates coming up for examination in each class.

Mr. WRAGG gave notice that at the next meeting he would move "That a Committee be formed to take into consideration the fixing of permanent dates for the several examinations of the Royal College of Veterinary Surgeons."

On the motion of Mr. CARTLEDGE, seconded by Mr. TAYLOR, the Secretary was empowered to nominate scrutineers of the ballot.

Mr. Cox and the Secretary were instructed to draw up a circular to be sent to every member of the College, requesting subscriptions to the building fund.

The SECRETARY read a list of nominations for Members of Council.

This concluded the business of the ordinary meeting.

SPECIAL MEETING.

MR. COX, in moving "That it be eligible for any Member of Council or Vice-President to attend any of the examinations held by the Royal College of Veterinary Surgeons, such attendance to be optional and to be prearranged from time to time with the Secretary," said he had for some years felt that the Members of Council, on whom devolved the duty and responsibility of electing the Examiners, should have the opportunity of becoming personally acquainted with the working of the examinations. He did not wish to put the members to any personal inconvenience or expense in attending the examinations, but if some of them had done so during the last two or three years they would have recognised at once whether there was any ground for suggesting that the increased number of rejections was due to the over strictness, or unfairness, or fads of certain Examiners. Such suggestions had produced a very ill effect upon the students. He was sure that the Examiners would be pleased to see Members of the Council present at the examinations. There was another little matter that he ought to mention. The Freemasons' Hall, Edinburgh, had been *pro tem.* the habitation of the Royal College of Veterinary Surgeons; but without the Council or Examiners being consulted, it was decided that the examinations should be held at the several colleges in Scotland in turn. The Examiners had no reason to apprehend anything but what would be perfectly satisfactory, and he held that the examinations should be entirely independent. If the Examiners found that they were in any way less independent than formerly they must again appeal to the Council in order that they might once more resort to the room that had answered so well on former occasions. There was one other matter which he thought the Council should be kept *au courant* with. It had been the practice to hand the diplomas to the successful candidates on the night of the examination, but great inconvenience had been found to attend that method, for students standing on the stairs knew at which tables they would be rejected. The result was that an Examiner had been insulted, and an insult to one was an insult to all, and also to the Council. He would suggest that notice should not be given to the successful candidates until the end of the examinations.

Mr. DRAY seconded the proposal. He was certain that the Examiners were gentlemen of unsullied honour and integrity, and that their aim was to do justice to the profession as well as to the pupil. He had been credibly informed that the examinations had been conducted in a very accurate way, and the Examiners deserved the support of the Council in every possible way.

Mr. TAYLOR wished to ask Sir Frederick Fitzwygram whether if any Member of the Council thought proper to attend the examinations he would be admitted. The proposal now made was a step in the right direction. It had been said that the practical examinations especially depended on fads and caprices, and it was highly essential that the Members of Council should see for themselves whether there was any truth in such a statement. He should support the motion with all his heart.

Sir FREDERICK FITZWYGRAM said he was not quite certain whether Members of Council might as a matter of right attend the examinations, but

when he was President he made it a point to go to both the examinations, and as he was admitted he imagined that he had a right to go. He thought it very desirable that Members of Council should be present, except in one respect, for he strongly objected to professors and teachers of schools attending, and as several Members of Council were also teachers, there might be some difficulty.

Mr. CARTLEDGE fancied that Members of Council were *ex-officio* members of the Board of Examiners.

Mr. SIMPSON quite agreed with the object of the resolution, but was a little in doubt as to its practical working. On one occasion a great number of Members of Council might attend, and on another all might stop away. Would it be possible to add a by-law to the effect that gentlemen desiring to attend should send in their names to the Secretary?

Mr. TAYLOR said if the names were given in they might be arranged alphabetically, and taken two and two in rotation.

Mr. WHITTLE suggested the appointment of a Committee to attend the examinations.

Mr. GREAVES said he remembered an occasion during his presidency when a Member of Council was told by the Examiners that he was not eligible to be present. Exception had been taken to the examinations being held at the colleges in Scotland, but it was done from motives of economy, for it cost a great deal of money to hold them at hotels, where policemen had to be engaged to keep order. He was sorry to find that one of the Examiners complained of that arrangement.

Mr. PERRINS approved of Mr. Cox's proposal. At each meeting of the Council previous to an examination it might be decided which two members might attend.

Mr. CARTLEDGE proposed that the words, "That it be tried as an experiment for one year," be added.

Mr. SANTY seconded this proposal.

Mr. COX said he should have no objection to the addition.

It was directed that the resolution be acted upon forthwith, and to be in operation for one year from this date (7th April).

Sir F. FITZWYGRAM moved: "That a Committee be appointed to consider as to the advisability of drawing up a Bill on the subject of the law of warranty." He said this motion referred to a subject about which there was a good deal of difficulty—namely, the amendment of the law of warranty. That law was at the present time in a very unsatisfactory state. As regards the public, there could be no question that it was unsatisfactory, and as regards the profession it was unseemly, leading to constant disputes between veterinary surgeons engaged on one side or the other. It was such a difficult subject for legislation that he only ventured to ask for a Committee to consider it. Of course it would be impossible to settle the controversy as to the period at which diseases were latent or incipient, but he thought there were three general principles which the Committee might consider, and if possible, work up into such a form that they might be passed into law. The first would be to legalise in this country the Irish system of warranty, by which it was understood that if nothing to the contrary was said, the buyer had a right to take a veterinary surgeon's opinion within forty-eight hours, and if it was unfavourable, return the horse. That was the accepted custom in Ireland, and he thought it would be well if it were legalised throughout the kingdom. He did not think it would work unfavourably to the veterinary profession. It would also be possible to come to a general agreement as to certain periods within which horses affected by particular diseases might be objected to by the purchasers, as for instance, in the case of exostosis. The third point

which he thought would be very useful, would be to define, in some way or other, what constituted soundness. His own opinion was that it must be divided under two heads—absolute soundness, and soundness for the purpose for which the buyer required it ; and a veterinary surgeon should in all cases specify to what degree of soundness his certificate referred. At present nothing was more common than for a veterinary surgeon to get into disrepute, because after he had passed a horse as sound for a certain purpose it was put to quite another and went lame. If some definite lines such as these were laid down by law, they would be very satisfactory both to buyers and sellers. It was not necessary to hurry forward the matter, for even if the Committee decided on recommendations it would be impossible to do more than print the Bill during the present session.

Mr. WHITTLE asked if the Act could not be so framed as to protect the veterinary surgeon in giving his opinion.

Sir F. FITZWYGRAM thought he was *ipso jacto* protected.

Mr. GREAVES said he was very pleased that Sir Frederick had brought this matter before the Council, and he entirely approved of the views that had been laid before them. Veterinary surgeons were at present liable to a great extent in courts of law for the opinions they had given, and he hoped that that state of things would be remedied. He would have great pleasure in forming one of the Committee.

Mr. CARTLEDGE said it was more important to define what was soundness or unsoundness than to alter the law of warranty. Nine-tenths of horses of any value were examined by members of the profession at the time of sale, and he had not seen a written warranty for some years, the law relating to it having practically ceased.

Mr. PERRINS said that he also had not seen a warranty for some years, and if the practice of giving it were dropped altogether, it would be a great advantage both to purchasers and sellers. Every opportunity should be given to a buyer for his chosen veterinary surgeon to examine a horse. In the case of valuable shorthorns and Herefords, examinations were always allowed and no warranty was asked for or expected.

Mr. DRAY said he had ascertained that in Yorkshire a warranty was scarcely ever given with horses, but they were examined by veterinary surgeons.

Mr. SANTY presumed that every member of the profession gave his opinion honestly, and it was very hard that he should be mulcted in damages if it turned out incorrect. Steps ought to taken to have the law altered in this direction.

Mr. SIMPSON said if the proposal had been brought forward by any one except a gentleman in Sir F. Fitzwygram's position, he should have despaired of its ever being taken up at all. Every practical man knew that warranties were very rarely given, and if they were, they were not considered of any value. He had not the least doubt that the Council would agree to the formation of a Committee; and, if so, it was a matter of very great importance to define soundness. Many men did not care about a horse being sound in the strict sense of the word ; what they wanted were useful horses, and if the veterinary surgeon took care to point out the deviations from soundness he was likely to be safe. The whole question bristled with difficulties, but it was a great consolation to know that members of the profession were more frequently consulted about the purchase of horses than they were formerly.

Sir F. FITZWYGRAM said he quite agreed in the desirability of abolishing all warranties, because it would lead to the same state of things as in Ireland, where there was no dispute about the decision of a veterinary surgeon. The certificate should state for what purpose a horse was "usefully sound," if it was not "perfectly sound." He was once asked by a gentleman

to find him a horse, for £40, suitable for his wife to drive in a four-wheeled carriage. The gentleman added that it must be one on which he could ride twenty-five miles on a summer's evening, and to hounds twice a week. Similar requests constantly occurred. If the Committee succeeded only in abolishing all claim to warranty he should be quite content.

Mr. CARTLEDGE said that formerly when warranties were given without examination, it might turn out, some time afterwards, that a horse had a well-defined bone spavin, and then, in a court of law, veterinary surgeons would be called on both sides to give their opinions as to how long it had existed. The result in such a case might be that the wrong side won, and great odium was, in consequence, thrown on the name of veterinary surgeon.

Mr. SIMPSON said that half the hunters and hacks sold in London were warranted, but many persons advocated arbitration in all horse cases, and in several instances he had been called in to settle such disputes.

Mr. PERRIN said it was thoroughly understood that at sales a "good hunter," when warranted, must be good in wind and eyesight, but he did not know that a "good hack" must necessarily be sound with regard to lameness.

On the motion of Mr. DRAY, seconded by Mr. WHITTLE, the following gentlemen were appointed on the Committee: Sir F. Fitzwygram, the Principals of the Schools, Professor Pritchard, Mr. Cartwright, Mr. Simpson, Mr. J. R. Cox, Mr. Perrins, and Mr. Greaves.

It was agreed that the annual report should be drawn up by the President, Treasurer, and the Secretary.

Mr. SIMPSON gave notice "To move for a Committee to inquire into the operation of Clause 9 of the Supplemental Charter of August 23rd, 1876, and to report thereon to the Council."

Mr. SIMCOX'S motion was withdrawn till the next meeting.

Mr. DRAY moved a vote of thanks to the Chairman.

Mr. PERRIN seconded the motion, which was agreed to.

The proceedings then terminated.

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

THE Annual Meeting of this Association was held at the County Hotel, Newcastle-on-Tyne, on Friday, 27th February, 1885, the President, G. Elphick, Esq., in the chair.

Present:—Mr. W. J. Mulvey, Bishop Auckland; Mr. J. B. Nesbit, Fence Houses; Mr. J. E. Peel, Durham; Mr. D. Dudgeon, Sunderland; Mr. H. Peel, West Hartlepool; Messrs. D. McGregor and Marsden, Bedlington: Mr. J. Gofton, North Shields; Mr. W. Grieve, Blaydon; Mr. W. Anderson, Hexham; Mr. W. Awde, Stockton; Mr. J. Bulman, Morpeth; Mr. G. Farrow, Jun., Durham; Messrs. C. Stephenson, H. Hunter, A. Hunter, W. W. Smart, and the Secretary, Newcastle-on-Tyne.

There were also present as Visitors:—Professors Williams and Lewis, Edinburgh; Messrs. L. Potts and J. Donald, Wigton; Mr. J. Scriven, Aberford; Mr. J. Borthwick, Kirkliston; Mr. T. Jack, Sunderland; Mr. R. Brydon, Seaham Harbour; Mr. R. Bruce, Great Smeaton; Mr. R. Tinsley, Malton; and Mr. J. Borthwick, Jun., Newcastle-on-Tyne.

The minutes of the previous meeting having been confirmed, Mr. Marsden, Bedlington, was unanimously elected a member of this Association.

The late Secretary and Treasurer, Mr. W. W. SMART, Newcastle-on-Tyne, then made his annual report, which showed the Association to be in a highly satisfactory state.

The PRESIDENT remarked that at a conjoint meeting of the Scottish

Veterinary Societies, held in Glasgow on December 24th, 1884, it was arranged that they would join with this Association in endeavouring to return candidates at the next Council Election.

Mr. DUDGEON proposed that all arrangements in connection with the next Council Election be left to the Committee formed for that purpose.

Mr. Mulvey was then unanimously elected as the candidate to represent this Association at the next election.

Mr. DUDGEON gave notice that, at the next meeting, he would propose that the hour of meeting be, in future, altered from four to three o'clock.

The PRESIDENT then read his Inaugural Address, as follows :—

GENTLEMEN,—I beg to thank you most sincerely for the high honour which you have conferred upon me by electing me your chairman for the ensuing year. I think you might, with benefit to this Association, have elected some one older and a more worthy member to fill this chair. However, since it is your wish that I should hold this important position, I place myself in your hands, and hope you will kindly look over my shortcomings.

The great difficulty I have in addressing you, is to find something that has not already been debated at this and kindred associations. This being so, I must apologise if I should, at times, walk upon the beaten track.

You are all aware that this, and I may say, all Veterinary Medical Associations, are established to promote the social status of our profession ; to create a good and friendly feeling amongst our professional brethren ; the protection of our professional interests, and the reading and discussion of subjects relating to veterinary medicine and surgery, and, I think, I may with confidence say, to do good to our fellow-creatures.

How are these good intentions best brought about? By each and every one of us uniting together and doing our very best, not only for our own individual benefit, but for the benefit of the whole profession ; and we ought at all times to be ever willing to assist each other in this great struggle of life. We should always make great efforts, and at times sacrifices, to attend these friendly meetings. It is only by regular attendance that we can ever hope to do good to ourselves and the profession. To do good to ourselves, we must enter freely into discussion upon the various subjects brought forward. Imparted knowledge never diminishes learning's store, but on the contrary, we find the more we know, the more we have to learn.

There are many obscure and intricate diseases affecting man and animals which are worthy of our investigations. Hence the necessity that we should be always anxious and ready to meet each other in friendly consultation and discussion, to try, if possible, to elucidate these apparently impossible problems.

We have, also, our Veterinary Parliament to look after, and carefully watch that our privileges are not encroached upon ; and that our governing body should know our opinions upon the different subjects brought forward for discussion at the Council Board. We can only accomplish this by attending these friendly meetings, and, if necessary, petitioning, or by deputation, expressing our views to our governing body, who, I am sure, are ever willing and anxious to have our opinions ; and should our opinions not coincide with theirs, I am confident they will give them their careful consideration.

Acknowledging the fact of the necessity for the profession being more united, and that the only way by which this can be done, is through the different Veterinary Medical Associations, I do sincerely hope, one and all will do your best to attend these meetings, and that any of you who have professional brethren, who are not members, you will not be long in inducing them to become enrolled. I should like to see more of our members belonging to the National Veterinary Association, and I earnestly appeal to

those who have not joined to do so as soon as possible. Not that many will be able to attend their meetings, but by lending a helping hand, you will indirectly assist in promoting the interests of the profession.

Looking at the past, many important changes have taken place in our profession, especially during the last few years. Upon some of the most important subjects there has been great diversity of opinion; but I can say, with the greatest confidence, that these oppositions have been honest ones, and I sincerely hope have been the means of doing a large amount of good and the cause of us becoming more united.

It is to be hoped that the recent Veterinary Surgeons' Bill will be the great success that the majority of the profession wish it to be. Time only will prove this. At present, many of our professional brethren are labouring at a great disadvantage, in consequence of existing practitioners being allowed to subscribe themselves as Veterinary Surgeons. Consequently, in many districts, qualified men are obliged to work at a very small remuneration for their services. This may also be partly due to competition amongst ourselves; we are all so very anxious to do all the work, and leave nothing for our neighbour, that many adopt the cutting-down process. I believe in some districts competition is so great, that many are obliged to accept the small remuneration of sixpence per mile for their services. Fancy a qualified professional gentleman going a distance of five miles for the magnificent sum of half-a-crown—not ordinary cab fare; and I am sure more money would be readily paid by a commercial traveller for the use of the horse and trap, without our professional attendance. I maintain this is a grave mistake, and I am afraid it is greatly due to want of confidence in ourselves. Why should we keep ourselves in poverty for the sake of doing our professional neighbour out of a client? We had far better only do half the work, and get a fair remuneration for our services, as to do double, and have poverty continually walking in our track. I am sure the public will think none the less of us for charging what is fair and reasonable. In fact, I am certain we should rise in their estimation. I seriously think we ought to do something in this direction; and, if my humble services are of use, I shall be only too glad to place them at your disposal. With regard to the future, there are many subjects that will require our careful consideration. I, for one, would like to see a Bill introduced for the better representation of our profession at the Council Board. We have had the franchise in the existing practitioners, but fortunately they have no vote or voice in our deliberations. The whole of the profession ought to be represented at the Council Board. At present, several districts are left out in the cold, and, I am afraid, under the present system, they will remain so. Each district ought to have its representative, or let each Veterinary Medical Association as representing a certain district, send a representative, and, in certain cases, where they have a larger number of members, two. At present, the North of England and the South of Scotland have no representative; and I believe other distant parts are similarly situated. It may be urged that members, living in these outlying districts, if elected, could not attend on account of the distance, and the time it would occupy in going to London. Undoubtedly this is a great drawback, and is the reason why many good men will not allow themselves to be nominated for election; but I am certain there are many able and willing members, resident in the North of England and the South of Scotland, that would think no sacrifice too great if they thought they were doing good to their professional brethren.

During the past few years, we have nominated two gentlemen to represent us without success. However, we do not intend to remain idle, but will continue to try until we do succeed. I do hope we shall succeed this year, and I earnestly appeal to the members of the profession to lend us a helping

hand on this occasion to return our nominee, Mr. W. J. Mulvey, Bishop Auckland.

Next year (1886) M.R.C.V.S. will not be eligible to serve, as members of Council, none but Fellows will be allowed to sit at the Council Board. I am not a prophet, but I have serious doubts as to its success. Not that our Veterinary Parliament will not be able to go on as before, but I think there will be a great deal of dissatisfaction. I ask, is it wise to have no one but Fellows (there are about one hundred on the register) to select our members of Council from? I have nothing to say against any Fellow, and I consider the Fellowship a step in the right direction; but there are many good men, members, who have not the time at their disposal to prepare for the Fellowship Examination, who, if elected as members of Council, would do an honour to the Board and a credit to the profession. We shall continue to have the same voting power, but I think it would be to the interest of the profession, if a certain number of members were allowed to sit at the Council Board.

The Contagious Diseases (Animals) Act is, at last, proving itself the great success the profession have always predicted, if properly carried out. I think a great deal of the credit is due to the profession for this success. At the same time, we must not forget that a large share of the honour is due to gentlemen outside the profession, for the manner in which they have taken this question up, and by their assistance carrying it to its present success, and also for the very handsome manner in which they have supported the veterinary profession.

There has, unfortunately, been within the last few days, two or three importations of Foot-and-mouth Disease from Germany. It is to be hoped it will not spread. Up to the present time, we have had no outbreak in this country since last December, and I think, with the precautions that are now being taken by the Veterinary Department of the Privy Council, it will be a long time before we shall see this disease again, if ever.

The recent Order of Council relating to the control of persons looking after animals suffering from contagious diseases, and the clothes to be worn by the attendants, is a great stride in the right direction. I am confident that the clothing worn by attendants has been the cause of many serious outbreaks of Foot-and-mouth Disease.

Cow byres, milk shops, and our milk supply, I consider one of the most important topics of the day, especially so when we consider the large consumption of milk by our infant population, and the great risks they run from impure and contaminated milk. I seriously think a great deal of good can be done by adopting more stringent measures against cow byres and milk shops; undoubtedly great improvements have been made, but still a great deal more requires to be done; and we, by giving expression to our opinions, may be the means of hastening a better state of affairs.

How often do we read of serious and fatal outbreaks of disease amongst human beings due to contaminated milk; and how often do we, when making professional visits, come across cow byres kept in a most filthy and unsanitary condition, with bad surroundings! I have no hesitation in saying that, if most of the malignant and obscure outbreaks of disease were thoroughly investigated, their origin would, in many cases, be traced to the cow byres or milk shops; and very often to want of care and precaution in outbreaks of disease amongst the dairyman's family. Why the latter should occur, I cannot understand. We take it for granted that as soon as disease breaks out amongst the family, their medical adviser is called in. He diagnoses the disease to be Diphtheria, Scarlatina, etc., and knowing the danger of these diseases being so easily transmitted by milk, one would naturally think he would at once stop the milk supply, see that the milk was

not brought into the house, or that the inmates were kept from being in contact with the milk, directly or indirectly. I do not wish to insinuate that all medical men do not take these necessary precautions; but if these precautions were taken, does it not seem strange that when we do have serious outbreaks of these diseases and loss of valuable lives, that upon investigation it is generally found out that the milk has been supplied by a certain dairyman, whose family, or some members of his family, are suffering from Scarlatina, Diphtheria, etc.?

As a preventive against these outbreaks, I would advocate that all byres and milk shops that are badly drained and ventilated, and where the surroundings are not good, should be closed; that light, air, good water supply, and good situations, free from any deleterious influences, should be a *sine qua non.*

No milk or milk utensils should be allowed to be kept in a dwelling house, and each byre and milk shop should have a separate existence. I would also urge that no milk utensil from a house where any contagious or infectious disease exists, should be allowed into a milk shop, or to mix with other milk cans. To avoid this, private cans should be abolished. Let each customer have his milk measured at the door. I am confident that in many instances the mixing of milk cans is the cause of a great deal of mischief.

I believe the time has now arrived when all byres and cows should be regularly inspected by a veterinary surgeon, and that any cows found not to be in a perfect state of health should be isolated, and the milk from these animals destroyed, especially if the animal shows the slightest tendency to tubercular disease; and should it be a confirmed case of Tuberculosis, the local authorities should have power to have the animal destroyed. I also think the local authorities should have power to stop the sale of milk from cows suffering from any infectious or contagious disease. Most of you will have read Professor McCall's paper on "Food Supply," read before the National Veterinary Association last year, at Manchester; and his extracts from a paper read by Dr. Robinson, at the Annual Meeting of the East Kent District of the British Medical Association, on an "Outbreak of Epidemic Sore Throat following the use of milk from cows suffering from Aphthous Fever." This paper proves, most conclusively, that milk from cows suffering from Foot-and-mouth Disease, is not fit for human consumption. I believe that our friend, Professor Walley, holds "that in Foot-and-mouth Disease, no harm can ensue from the milk if there are no udder lesions." I believe that prevention is better than cure, and where valuable lives are at stake, is it wise to throw a chance away?

With regard to what is, and what is not, fit for food, as applying to the flesh of animals, it is very difficult to lay down a hard and fast line, so much depends upon personal inspection, and it is here that I think a veterinary surgeon is pre-eminently the only person whose opinion should be accepted. At present, the Medical Officer of Health is appointed to give the verdict. I would ask, what do medical men, as a rule, know of diseases in animals? Where have they obtained their knowledge? and, in what part of their curriculum are they taught the diseases of animals, their post-mortem appearances, and meat inspection?

Recently the Medical Officer of Health for this city wrote a letter to the *Lancet*, upon this very important subject, and, according to his ideas, he would call in the veterinary surgeon as an expert, to inform the medical officer as to the disease the animal had been suffering from, so as to enable him to give a correct opinion as to the fitness of the flesh for food. If this is the opinion of the medical profession, that a veterinary surgeon should be called in as an expert, a veterinary surgeon's opinion ought also to be taken in preference to the medical officer, as to the fitness of the flesh for food, or not.

Veterinary surgeons, being conversant with the diseases of animals, should act as meat inspectors. Their knowledge enables them to ask many important questions, when inspecting a carcase, especially when the internal viscera have been removed or destroyed ; also, as to the animal's history and symptoms previous to being killed, which will enable him to give a correct opinion. How often do the owners say the animal has been choked ; and to save its life they killed it, when on careful inquiry and examination by a veterinary surgeon, he has proved the carcase to be unfit for food from Anthrax, or other similar disease, which would otherwise have been passed as fit for human consumption.

I believe, on the Continent, veterinary surgeons are regarded as specialists on these subjects ; and most Continental Governments recognise the fact that the health and wealth of the people greatly depended upon the healthy state of the milk and flesh consumed. This should have more recognition from our Government and our local authorities, who seem very lax upon these very important subjects. I am afraid we veterinary surgeons cannot do much to force our views upon the authorities, but indirectly through the press and the public, we may hope to be instrumental in doing a large amount of good.

There are many things which ought to be done. Amongst these, private slaughter-houses should be abolished and the local authorities compelled to establish abattoirs under veterinary supervision. No doubt this change would at first cause a great deal of trouble and annoyance, and would necessitate a large expenditure ; but I am confident it would strike the evil at its foundation, and the public would have a guarantee that what they were eating was good and wholesome.

In large towns like Newcastle, an experienced veterinary surgeon should be appointed as chief inspector over our cattle market, abattoir, cow byres, and milk shops. He should have an efficient staff under him, who, before being appointed, should undergo a rigid practical examination. Until this is done, the present unsatisfactory condition of affairs is sure to continue. I have nothing to say against the present staff of inspectors in Newcastle. I believe them to be trustworthy, and I have no doubt they try to do their best, but it is impossible for them to do their duty, as they have received no special training. They know nothing, or very little, about the use of the microscope, and the influence of disease upon the tissues of the body. Until they do, they ought not to be appointed as guardians of the public health.

(To be continued.)

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

Office-bearers for the Year 1885.

President : J. W. T. Moore, Esq., Birkenhead ; *Vice-Presidents :* Mr. R. Reynolds, Mr. T. Simpson, Mr. R. C. Edwards. *Treasurer :* Mr. George Morgan (re-elected). *Secretary :* Mr. Edward Kitchin.

The eighty-second quarterly meeting of this Association was held in the Medical Institute, Hope Street, Liverpool, on Friday, the 27th day of February, 1885. The President-elect in the chair.

There were present : Messrs. Morgan, Elam, Hurndall, Bain, Kenney, and Secretary, Liverpool ; Messrs. W. A. Taylor, Locke, and Wolstenholme, Manchester ; Wittle, Worsley ; Woods, senior, Wigan ; and Edwards, Chester.

Letters of excuse for non-attendance were received from the following gentlemen, viz. : Professors Williams, Walley, and Lewis ; ex-Professor Pritchard ; Messrs. M. Naylor, Wakefield ; J. M. Walker, Halifax ; T.

Briggs, Bury ; W. G. Schofield, Pontefract ; H. Barnes, Malpas ; J. and A. Lawson and E. Faulkner, Manchester ; N. Barron, Sutton ; R. Reynolds and W. Swithenbank, Liverpool.

The minutes of the last meeting were read and confirmed.

Mr. BAIN proposed and Mr. WOODS seconded the resolution : "That Mr. R. S. Reynolds, Liverpool, be nominated as a candidate for the Council of the Royal College of Veterinary Surgeons." Carried unanimously.

Mr. WOODS proposed and Mr. BAIN seconded, that the following members form a committee and be empowered to take the necessary measures in order to secure Mr. Reynolds' return, viz., the President, Secretary, and Messrs. Bain and Hurndall.

The Secretary nominated Mr. Locke, Manchester, and Mr. Davis, Bootle, for membership.

Mr. HURNDALL read the following paper on

"*The Management of Dairy Stock, with Special Reference to Economic and Hygienic Principles.*"

Mr. President and Gentlemen,—Allow me, in the first place, to congratulate my friend Mr. Moore upon assuming this evening for the first time the high and honourable position of President of this society ; it is, in my opinion, a position which it becomes every member to emulate, and in bestowing this distinction upon our fellow members we are alike doing honour to the individual and the profession ; it is to me an inexpressible pleasure to see my friends—and as such I look upon every honourable member of our profession—receive well-deserved recognition at the hands of those in whose power it rests to confer it, and to-night I feel unbounded satisfaction at being allowed to introduce a subject for discussion under the presidency of my friend Mr. Moore.

I believe you will all agree with me that the subject I have selected for consideration is peculiarly appropriate at the present juncture. Agriculturists are beginning to discover that the old and beaten paths upon which they and their forefathers have trodden for centuries are no longer worthy of their notice. Politicians, economists, and scientists are with one voice seeking to enlighten them upon the best measures to be resorted to in order that greater prosperity may attend the efforts of the agriculturist. Great attention has been given to the development of the dairy, and the Premier, than whom probably there is no cleverer financier in this country, has repeatedly of late pointed out to farmers the value of a reformed dairy as the source of more profitable returns for labour and capital. Chemists and other scientific men have been lecturing upon the subject, and all who have thought thereupon, being capable of giving an opinion, concur in advising that it is worthy serious attention and careful thought. In justice to myself, I think it only right to state that long before Mr. Gladstone or any of the other gentlemen whose names have recently been prominent before the public advocating the direction of a closer attention to the opportunities and advantages derivable from the dairy, I, in season and out of season, most persistently sought to induce many of my farming friends—in those days being myself a farmer—to give more earnest heed to the work of butter and cheese making, and the sale of raw milk ; but as most, if not all of you, know, the English farmer is at the best a very slow and conservative being, and as a consequence I was looked upon as a sort of aimless enthusiast gone mad on one subject ; fifteen years ago and more I entertained much the same views and ideas that I do now, and as year by year rolls away, I find that many thoughtful men are coming to hold opinions close akin to those I, in all sincerity, sought to press upon my then *confreres* in business. Now that it is my privilege and honour to stand shoulder to shoulder with you

in life, gentlemen, as a member of one of the noblest of professions, I feel no less anxious to communicate to those whose interest is really at stake, ideas which my professional training has tended to ripen and mature, and I feel that at this present hour I am—though at best poorly qualified—far better able to give wholesome advice than at any previous period of my life; and this fitness is in the main due to knowledge and information gained and applied in my studies as a veterinary surgeon.

The educated mind of a member of our profession, trained to think and act promptly and with decision, is far more capable of considering new and improved suggestions concerning the management of stock than is that of the ordinary agriculturist; and this may be said without in the slightest depreciating the mental calibre of the farmer; to maintain this reputation, however, it becomes a necessary concomitant that the veterinary surgeon should himself carefully digest the subject before pretending to dispense advice thereupon; and hence, I invite your consideration of the suggestions I have to offer in the hope that something of a practical character and for the benefit of the country at large may be the result of our deliberations.

I have very little doubt that some of my conclusions will be considered far too sanguine, and that you will be disposed to charge me with claiming too much success for the system I advocate; if so, all I ask is, don't give too hasty an opinion, nor let it go forth to the world that a decision, negativing my propositions, was after the short discussion possible in one evening arrived at; the subject, gentlemen, is a wide one, and as such claims a deep and far-seeing inquiry; if we can show to the agriculturists of this country that a better, more remunerative, and health-securing system of management is within the reach of all to adopt, we should have contributed an inestimable benefit to our fellow-countrymen, and we shall have done much to exalt the noble profession in which we are each and all so deeply interested. I shall, in the first place, deal with the economic principles involved in the system of dairy management that I am about to lay before you; in other words, the pounds, shillings, and pence side of the question.

It has been the custom of farmers in the past far too much to look upon the dairy as a sort of amusement, or wholesome occupation for the good lady of the house, whereby she might put on one side a small store of pin-money, and especially is this the case when the farm is neither adjacent to nor within easy reach of a populous commercial centre. This view of the matter is altogether an erroneous one; for with indifferent management only it is very easy to prove that the profits of the dairy are well worth earning, and of all the animals on the farm, probably none is capable of greater improvement than the cow, certainly none repays the trouble more promptly. If farmers, instead of spending fruitless efforts in competing with our American cousins, and with Russia and Australia, in growing wheat, would address themselves to matters that are well within their reach, of which the production of butter and cheese, to say nothing of the raw article, are among the number, they would find great advantage to themselves, and be able to show how much they could benefit their own country.

For the better appreciation of the subject, I must remind you of the systems of management now generally adopted.

First, *Grazing*, or the turning of a given number of cattle into a piece of permanent pasture to pick up their own food. Now, what is the practical result of this course of procedure? Immediately the animals are turned into the pasture, the first thing they do is to wander hither and thither until they have satisfied their faculty of curiosity, but at the expense of spoiling the grass for feeding purposes; they next lie down upon the very article which is furnished for their nutriment, they breathe upon it, defœcate upon it, urinate upon it, and in other ways do the best they can to render useless the

succulent material which has cost money in rental, manure, and labour to bring to perfection, and the amount of waste probably amounts to about 60 per cent. of the produce.

Beyond the loss absolutely incurred in this manner, the deterioration in value of the manure must be taken into account, also the risk of exposure to the animals in this extremely variable climate.

The next system is that of "*Stall feeding*" adopted by the town dairymen; while of course the whole of the food placed before the stock is, under this management, consumed, and a great saving effected, as compared with ordinary grazing, there is great room for hygienic improvement; indeed, the deficiency of anything like system in hygiene among dairies is one of the crying evils of the present day. Town dairies as at present managed are probably the centres from whence infectious diseases are disseminated far and wide, and a duty devolves upon our profession to agitate and agitate this subject until the ear of the public and the local authorities are thoroughly aroused to the seriousness of existing conditions. It is true the voice of the veterinary profession has been repeatedly raised, and solemn warning given on this question already, but it has not received that respect which the urgency of the subject demanded. Let me, however, urge upon you, gentlemen, do not be discouraged by this; the path of duty is plain, let us fulfil it conscientiously; then all moral responsibility is shifted from our shoulders to those of the public at large; but knowing, as we do, what are the sad results affecting the human subject from persistent neglect on the part of local sanitary authorities in dealing with this matter, it becomes us as an united profession to continue from time to time, as opportunity presents itself, to sound the note of warning. The sister profession has not infrequently treated our opinions upon this subject with undisguised scorn and contempt; irritating as such treatment unquestionably is, I do not think we shall serve any useful purpose by retaliating upon the medicals in a similar spirit; where they are not amenable to reason and persist in refusing to acknowledge the deference which is due to those who, by practical observation and experience, are qualified to advise thereupon, it seems to me we have only to observe a dignified silence. With the public, however, the case is different, and if we each and all do our best honestly and conscientiously to make the facts known with reference to this matter as favourable opportunities present themselves, I have a very strong faith that we shall be able to assert ourselves as a profession, and that the people will not fail to recognise which is the true authority to rely upon in matters affecting health where animals are concerned. It is because of the lack of observance in sanitation, the extremely artificial and unnatural conditions under which cows are kept and fed, that I object to stall-feeding as conducted in large centres of population like Liverpool, Manchester, and London.

I will not further occupy your time by explaining my objections to existing systems of management, as these will become quite patent as I point out in detail what I deem the advantages of the "*Soiling*" system, which is that I have advocated for many years, because I believe it is productive of greater profit to the individual and the country; because also it is more conducive to health in cattle and consumers of dairy produce, and will serve as a wholesome check to the spread of infectious diseases among the population of busy centres of industry.

By the term "soiling," is meant the herding and feeding of cattle in a yard or enclosed space, having sheds attached, or better still, the whole roofed over, to protect the stock in unfavourable weather, wherein cut food will be served, instead of depasturing the fields. Such crops as lucerne, the clovers, sainfoin, Italian rye grass, meadow grass, vetches, etc., being grown and depended upon for produce during the spring and summer months. Of

course the selection of the kind of crops must depend upon the character of the soil cultivated ; during the autumn and winter months, mangel-wurtzel, both tops and roots, carrots, parsnips, Swede turnips, cabbages, oats, beans, peas, meadow hay, clover hay, sweet oat and barley straw, would form the staple food ; and let it be observed that the whole of the foregoing may be raised upon the farm without the necessity of relying upon the various artificial cakes and food offered in the market, none of which can in these days of keen competition be depended on as the pure, unadulterated article, and which under the most favourable circumstances cannot compare in utility with the before mentioned natural articles of consumption.

I now propose to lay before you *seriatim* the advantages of the soiling system, and then to enlarge upon each head in its numerical order.

1st. Increased production of milk.
2nd. Superior quality of milk.
3rd. Better condition of animals as compared with those grazed.
4th. Economy in consumption of food.
5th. Great saving of land.
6th. Waste land, now occupied by fences, materially dispensed with.
7th. Increase in the quantity and improvement in the quality of manure.
8th. Value of land produce increased.
9th. Protection afforded stock against various forms of disease, infectious and non-infectious, and parasitic invasion.

These may be accepted as some of the leading advantages accruing from the regular, systematic, and intelligent management of a herd of cattle—dairy or otherwise—on the "*soiling*" system.

We will now examine the advantages more in detail.

1st. *Increased Production of Milk.*—The advantage of soiling over grazing has been proved to be specially realisable in the case of milch cows ; when cows have grass, whether meadow or artificial—the latter word being used to differentiate between ordinary meadow grass and such grasses as clover, etc , etc.—brought to them in given quantities and at stated times, they are saved the labour and exertion of ranging far and wide in search of their food ; and as they will under such conditions only take just so much exercise as the calls of nature demand, the wear and tear on the constitution does not exceed what is absolutely necessary in this direction, and the nutriment that would otherwise be expended in oxidation in the tissues goes to ensure an increase in the supply of milk, which increase may fairly be set down at one-third over and above that obtained when the animal is grazed. Cows always search after the sweetest spots in a grass field, and I doubt not walk miles during a day in carrying out this fanciful investigation, at the expense of much valuable time that could otherwise be occupied in quiet rumination and rest ; the latter being of first importance for the maintenance of constitutional vigour, especially with free milkers, in whom the secretory process makes considerable demands upon the system ; hence it is desirable that no more physical exercise should be taken than the requirements of nature suggest for preserving a healthful condition of body. It is commonly estimated that a cow will yield about 3,000 quarts of milk in a year, but excluding city and town dairies, which are conducted on the stall-feeding system, and taking the ordinary farmer's cow as an illustration, this quantity is far in excess of that usually obtained ; admitting, however, for the sake of argument, that 3,000 quarts is a fair average, let us see what the soiling system does. In the case of a Sussex bred animal, the detailed particulars concerning which are now lying before me, I observe that for one season, dating from the day the cow calved onwards for a period of fifty-one weeks and four days, the accounts, which were kept with scrupulous accuracy, show that she produced 5,782 quarts of milk, or an average of rather more

than sixteen quarts per diem. It may be urged that this is an extreme case, and that it is not right to quote it as an example of what may always be looked for. I am quite ready to admit that it would not be reasonable to take this as an average case; but let us return to the accounts of the same dairyman, and we shall find the results of eight years' working; the total quantity of milk obtained from one animal during this period under the same management was 38,885 quarts, which is equal to about 4,860 quarts a year, or between thirteen and fourteen quarts per diem all through the year. Of course, much depends on the selection of the animals; but at a meeting of this description it would be a work of supererogation on my part to occupy your time with a description of the peculiar points in a cow that are presumed to indicate her capacity for free milking. I am of course assuming that those who pretend to be dairymen will only keep such cows as promise to give the most profitable yield. I think it necessary just to refer to this in passing, because my arguments are based upon a system of management, and I am assuming that the animals to be dealt with are of a description suitable for the comparison.

2nd. *The Superior Quality of the Milk.*—It will be quite apparent to every thinking man, that if the strength of a cow is nursed by careful attention in providing her necessary food without the expense of uncalled for effort on her part, and her constitution has not to withstand the deteriorating influence of exposure to all sorts of inclement and changeable weather, the nutriment which would otherwise be withdrawn from the circulating fluid for the nourishment of worn-out tissue would naturally be diverted into the channel that made the next greatest demand, which in the cow is undoubtedly the mammary gland. Where, however, physical wear and tear is reduced to a minimum, and is not more, as has already been said, than is absolutely necessary for the maintenance of a healthy body, then the elements requisite for an abundant and rich lacteal secretion abound in the blood, and the physiological process goes on under the most favourable conditions. To descend from the region of argument to realised fact, let us see how the quality of the milk of the cows before mentioned turned out. The milk which was drawn from the cow yielding 5,782 quarts during the year, was of such first-class quality that it produced no less than 675 lbs. of butter, or a weekly average of rather over 13 lbs., which fact, you will admit, speaks volumes for the richness of the milk. The 38,885 quarts, which you will remember were the yield of one animal during eight years, produced 4,299 lbs, giving an annual average of 537 lbs., or a little more than 10 lbs. a week all the year round. Supposing that this yield of 4,860 quarts of milk per annum—which I contend is a fair average to expect, if you select your animals wisely—were sent into town and sold at the usual price of fourpence a quart, the returns would amount to £81 sterling; deduct expenses of keeping the cow, including rent and taxes of land, seed, labour of cultivation, and attendants' wages, which at a very liberal estimate may be put down at £30, and you have a net profit of £50 per cow; or if the farmer sells the milk at the usual wholesale price of twopence halfpenny per quart, you may calculate on a net profit of £25 per cow, which, in my judgment, is a handsome sum to make on the capital required for this business.

3rd. *Better Condition of Animals as compared with those Grazed.*—Some may object that dairy cows used for milking and the production of butter and cheese are never expected to be in high condition. There is, however, an answer to this. Dairymen have learned that cows give very little, if any, less milk for being in high condition, so long as they are sufficiently supplied with food containing a suitable quantity of albumenoid constituents, in addition to the fat-forming principles necessary for milk production; so that should any unexpected circumstances occur tending to interfere with a

full and profitable supply of milk, no great loss need be incurred, as the animal is fit at once for the butcher. There can hardly be any necessity to add to what has already been advanced to prove that animals fed upon this system must perforce make more muscle and fat than if they have to rely upon their food supply by grazing.

(To be continued.)

SOUTHERN COUNTIES AND CENTRAL VETERINARY MEDICAL ASSOCIATIONS.

A MEETING of the above associations was held at the First Avenue Hotel, Holborn, on 26th March. Mr. F. W. Wragg, London, presided, and there were present, Messrs. W. A. Edgar, J. B. Martin, R. A. Stock, H. C. Legge, F. Samson, J. D. Barford, R. J. Barton, Wm. Cawthron, J. Woodger, A. Glover, C. F. Hogben, H. W. Caton, A. Broad, Hon. Sec. C.V.M.A., E. A. Hollingham, Hon. Sec. S.C.V.M.A.

The Hon. Sec. reported that he had received letters and telegrams from Messrs. H. L. Simpson, M. M. Rock, F. Farrance, and C. Morgan, regretting their inability to attend in consequence of business.

The members of the S.C.V.M.A. next proceeded to elect officers for the ensuing year.

Mr. HOLLINGHAM, in proposing Mr. Martin as President for the ensuing year, paid a just tribute to his energy and perseverance in promoting the interests of the association, and remarked that it was mainly through him the association was formed. In these remarks Mr. BARFORD thoroughly concurred. The proposition was seconded by Mr. STOCK, and carried unanimously.

The next business was to elect Vice-Presidents, Messrs. Martin, Stock, Glover, and Barton, having served that office last year. Messrs. Wragg, Cawthron, Barford, and Edgar were unanimously elected for the ensuing year.

Mr. Barton was elected Treasurer.

Mr. Hollingham was re-elected Secretary.

The PRESIDENT said it had been proposed by the C.V.M.A. to support Messrs. E. C. Dray and Hunting as members of the council.

Mr. HANCOCK thought Mr. Dray would be elected a Vice-President, and proposed that Mr. Barford, of Southampton, should be supported, with Mr. Hunting. This was seconded by Mr. BARTON, and carried unanimously.

The HON. SEC. then read a letter from the Hon Sec. of the R.C.V.M.A. asking the support of the association in taking steps to have clause 9 of the supplementary charter, granted in 1876, rescinded.

Mr. BARFORD said there were many strong arguments against this clause being carried out; there were about 3,000 members in the profession and 130 Fellows, and he thought it was neither fair or desirable, in the interests of the profession, that all Councilmen and Examiners should be selected from so small a section, as there were many good men who were not Fellows who would thereby be excluded. He therefore proposed that the support of this association be given to the matter contained in Mr. Kidd's letter from the R.C.V.M.A.

Mr. HANCOCK rose to second this proposition, and remarked that they were well aware how the original Fellows were elected, and that any well-read man without much practical knowledge could, if he had the spare time, become a Fellow ; such a man would not have the best preparation for an Examiner.

Mr. EDGAR said that this matter had been before the profession nine years, and there had been plenty of time for those who desired it to qualify them-

selves, and he thought it a pity that, just as the clause was coming into operation, they should bestir themselves in order to abolish it. What was the Fellowship degree for, if not to stimulate young men to work and obtain it, and if it carried no other reward than the letter F instead of M, would it be worth working for? He would therefore propose, as an amendment, that clause 9 be allowed to stand.

The PRESIDENT spoke as a member and not a Fellow, and said that when members found that they could not become Councilmen or Examiners without becoming Fellows, it would stir them up to obtain the degree. He finished by expressing his determination to qualify as a Fellow, if necessary.

On the question being put, the proposed amendment was lost by six votes to five.

Mr. W. A. EDGAR then read a most interesting and scientific paper on "Mammitis Bovis," which will be shortly published.

The discussion which followed was taken part in by Messrs. Martin, Cawthron, Barford, Hollingham, Samson, and the President.

A hearty vote of thanks was accorded Mr. Edgar for the very able manner in which he had treated and defended the subject.

A vote of thanks was awarded the President for the very satisfactory manner in which he had fulfilled his duties during the past year, the same to be recorded in the minutes.

Mr. WRAGG having suitably responded, proposed a vote of thanks to their Secretary; this was carried unanimously.

It was decided to hold the next meeting at Rochester, the last Thursday in June.

Red Hill. E. A. HOLLINGHAM, *Hon. Sec.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

A MEETING was held in the Veterinary College, Glasgow, on the 18th March. The Vice-President, Mr. Anderson, jun., occupied the chair.

Present:—Professors McCall and Lewis; Messrs. Robinson, sen. and jun., and Macfarlane, Greenock; Mr. Allan, Clarkston; Weir, Airdrie; McCall, Ayr; Calderwood, Clitherow; Messrs. Weir, McQueen, Wyper, Tweedley, Frew, McNicol, and the Secretary, Glasgow.

Apologies for absence were intimated from Professor Walley and Mr. Rutherford, Edinburgh; Mr. Campbell, Kirkcudbright; Mr. Constable, Inchture; and Mr. Nesbit, Galston.

After some preliminary business concerning the ensuing election of members to Council, the National Veterinary Association, and the Fellowship Clause,

The CHAIRMAN called upon Mr. Robinson, jun., Greenock, to make some "Observations on the Epizoötics of the Horse in 1883-4, and their Modes of Propagation"; and afterwards on Mr. Weir, Glasgow, to show a specimen and read notes of a case of Acute Arthritis.

Mr. ROBINSON said: During the last two seasons I had the opportunity of observing the dissemination of a contagious disease, one mode of the transmission of which I thought had hitherto escaped observation. While endeavouring to collect sufficient information on the subject, to bring the matter before the society in a conclusive manner, there appeared in the *Recueil de Médecine Vétérinaire* of August last year, the report of a commission deputed to give the Société Centrale an account of a memoir by M. Deglaire on, apparently, the same disease, propagated in precisely the same way.

As our French friends were first in the field, and particularly as their ob-

servations are more minute, I will take the liberty of translating to you what appeared in the journal above mentioned :—

"REPORT OF COMMISSION ON TYPHOID FEVER (?)* OF THE HORSE, MODE OF PROPAGATION, ETC.

"M. TRASBOT : Gentlemen,—In the year 1882, M. Deglaire, veterinary surgeon, at Sedan, addressed a memoir to us relating to an epizoötic which had attacked the equine species in the department of Ardennes. A commission of MM. Nocard, Benjamin, and Trasbot was charged to give you an account of this memoir.

"Since then the author has addressed two complementary notes to us, confirmative of his first work, and a plan of the country invaded by the epizoötic.

"The whole forms a considerable amount of original document. I have now the honour of bringing before you the principal points. This affection, which appears already several times to have attacked the horse population of Ardennes, showed itself suddenly in the month of January, 1882, in a locality close to Sedan, and from there pretty rapidly disseminated itself through the country by a particular mode of transmission, which the author believes to have seized—a mode of transmission which constitutes, as we will see, the original side of his memoir.

"The disease commenced in all the stables in a mare, and then propagated itself, without distinction and with great subtlety, to the horses of the locality. The subjects attacked are under the stroke of an intense fever; there is extreme languor, the great functions are accelerated, the beatings of the heart have a metallic tinkle, the pulse is rapid, the artery soft, the eye weeping, and the conjunctiva cachou coloured. The mouth is dry, burning, and the gums present a violet line; the extremities are ordinarily involved. During the first few days the appetite is absolutely lost, but the excrements do not present any modification. All these symptoms come on rapidly—in twenty-four or forty-eight hours. They diminish sensibly towards the third or fourth day, and disappear the tenth, twelfth, or fifteenth day, according to the case.

"Contrary to what has been observed in the majority of typhoid epizoötics, M. Deglaire has not observed any localisation of the disease; a fatal termination has been a rare exception, and has only been observed in a few sucking foals. No adult horse treated from the commencement has succumbed, but convalescence has generally been of pretty long duration ; and, finally, abortion has been observed in nearly all the mares in foal which were attacked. The disease frequently disappears without any treatment. The author prescribed for the majority of his cases white diet and the tartro-borate of potash, or the sulphate of soda.

"When the languor was excessive, a small blood-letting was generally followed by sensible improvement; but the question of treatment has here relatively little importance. That which is particularly interesting is the march of the epizoötic and its importance from the point of view of rural economy; for although it has caused little mortality amongst adults, it has been the cause of great hindrance to agricultural work.

"Our colleague regrets not being able to indicate the anatomical alterations of the disease which he has studied, the mortality being so small as not to have given him the opportunity of making a single autopsy.

"He now arrives at the etiological question, and remarks that it is not possible to explain the development of the disease by the invocation of the

* The (?) is mine.—A. R.

ordinary causes of Typhoid Fever: youth, plethora, fatigue, want of training, and excessive work.

"It is a unique cause, says the author. It is the effect of contagion by a particular method altogether new, and by that in itself extremely interesting.

"Everywhere the disease seems to have been imported by travelling stallions, even when these appeared to be themselves in the enjoyment of good health.

"In all the affected stables the disease has commenced in one of the mares covered.

"He reports, in his first memoir, twenty-one cases to this effect, clearly proved, collected by himself or his father, exercising the veterinary profession thirty-four years.

"Other cases in great numbers remain unknown, because the proprietors, for one reason or another, have not consulted veterinary surgeons.

"In all cases the disease has commenced in a mare recently covered. A little inquiry has always elicited:—1. That it was the consequence of a contagion easily traced. 2. That it has been brought in by some travelling stallions, and that it has been transmitted by the service of the first mare of the infected stable.

"The history of one of the stallions is particularly curious. The horse was attacked by the disease in September, 1881. He recovered perfectly, and commenced his service in the month of January, 1882, infecting the country until the month of July, by transmitting the disease, which may be affirmed with certainty, for the disease disappeared with his service. Other stallions became infected by serving affected mares, and afterwards transmitted the disease.

"The epizöotic recommenced in 1883, always with the services. This time it is disseminated by another stallion, which has again introduced it in 1884.

"The stallions which transmitted the disease seemed to enjoy excellent health. In two complementary notes, M. Deglaire again reports a considerable number of new cases, to force conviction on those who may still doubt. He asks himself, finally, if he has been in the presence of Typhoid Fever, of Horse-Pox, of the *Maladie-du-coit*, of the Influenza of Zundel, or of a disease not yet described, and concludes, with reason, we think, the existence of the first.

"But still he is astonished that a stallion in a state of perfect health—apparently, at least—has power to transmit the disease.

"On this point, in fact, it would be hazardous to form a definite opinion. It may be thought that the animal serves as a vehicle of contagion, is impregnated and transports it after the manner of inert substances, until an irrefragable explanation of the fact be given us. Must we admit a chronic form of Typhoid Fever? We think not. The author points out the losses which this epizoötic has caused to agriculture. He asks that it may be added to the diseases designated under the article 1 of the law of 21st January, 1881.

"On this point we separate ourselves from him. The disease is not of sufficient gravity to justify the application of sanitary measures much more hampering than useful.

"He proposes the question: if the proprietors of horses contaminated could, by invoking the articles 1382 and the following—notably, 1385—institute against the proprietors of the stallions which have given the disease an action of damages? For that there would require to be proved that the disease had been carried by the suspected stallions and by no other way. Then, that proof would not be easily furnished. The mechanism of accidental contagions is sometimes so difficult to seize that actually it would

be rash to express one's self in court, where it is not sufficient to have an opinion, but where it is necessary to express a certainty. That last question, it seems to us, must be left open.

"To conclude, gentlemen, the work of M. Deglaire possesses qualities you will prize highly. It is composed of precise documents. It makes known a mode of propagation of Typhoid Fever hitherto unknown.

"From this point of view it has an incontestable originality. We now ask you to remit it to the Commission of Rewards, which we hope will judge it as favourably as we have.

"*Discussion.*

"M. CAGNY: The epizoötic observed by M. Deglaire has generally been benign, which is not unusual. I have seen Typhoid Fever exhibit itself with little gravity in certain localities, depending particularly on the season of the year in which it occurred, and more or less upon the good condition of the horses in the locality.

"I now turn to the important part of the communication of our colleague—contagion consequent upon the service of stallions in good health. This is not an isolated case in the history of this disease, as you will see by the following extract from a letter of M. Delamairés, dated July, 1883:—

"'It is true that I had to attend horses attacked by Typhoid Fever, belonging to M. Roblin, at Betz, and to M. Courtier, at Villers-sous-Genest. On the 15th of June, I was called to attend, at M. Courtier's, two mares affected with Typhoid Fever, and which had been served along with other three, not ill, eight days before, by a black stallion belonging to Wallon. Since then seven or eight other horses and one of the above three mares have been affected, all pretty mildly, several exhibiting a temperature of 41 C. and some tenths (about 106 F.).

"'There are still some fifteen horses in the stable which have shown no illness.

"'I separated the affected, and scattered the others. On the 20th, I was called to M. Roblin's, to see a mare served also eight days before by the same stallion. The mare recovered, but communicated the disease to her neighbour in the stable, an old horse, which died. Another mare, not served, has since been ill, but is recovering. Two other mares, separated since, but which had been in contact at the commencement with the affected, are well; they have not been covered. I have seen our colleague, Congis, who informs me that he also has some cases of Typhoid Fever, some of them at Ronville; and I have since learnt from M. Courtier that the stallion in coming to him the first time arrived from Ronville, where he had sojourned.'

"M. Cagny continuing says: Here also is another instance of a much earlier date, observed in 1826, in some districts of the canton of Desures, surrounding Boulogne-sur-Mer, by Bernard, of Boulogne-sur-Mer, who published it in the *Journal de Medecine Veterinaire Theorique et Pratique* in 1830. Typhoid fever broke out in France in a general manner on the whole horse population in 1825. It was at that time described under the name Epizoötic Gastro-enteritis of 1825. Now, in 1826, following the service of certain stallions, the same Gastro-enteritis showed itself, in March, in mares which had not been attacked in 1825, and only upon these, and propagated itself in the stables among the animals which had not been attacked the previous year. The proprietors becoming alarmed, ceased to have their mares served. Then, at the end of May, they recommenced, beginning with the newly recovered mares, in which no return of the disease was observed. When tried with mares which had not yet been affected, either in 1825 or in 1826, the disease reappeared.

(To be continued.)

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE general annual meeting of this association was held on the afternoon of Friday, the 27th ult., at the Great Western Hotel, Reading, and was well attended, among those present being Mr. W. G. Flanagan, President for the year; Mr. G. A. Lepper, Aylesbury; Mr. J. P. S. Walker, Oxford, Treasurer; Mr. Simpson, Maidenhead; Mr. Irving, Chipping Norton; Mr. Simpson, Windsor; Mr. Barford, Southampton; Professor Pritchard, London; Mr. F. W. Wragg, London; Mr. Jas. East, Aylesbury; Mr. Darling, Bracknell; Mr. G. A. Drewe, Abingdon; Mr. Mellett, Henley; Mr. Varney, Winslow, Bucks; Messrs. Hunt and Howard, Newbury; Mr. Slocock, Hounslow; Mr. Williams, Lamborne; and Mr. H. Kidd, Hungerford, Hon. Sec. Apologies were announced from Messrs. H. G. Lepper, J. W. Lepper, Joseph Leach, Brewer, Walker, Jones, Bull, J. P. Bennet, Hanks, etc.

On the proposition of Mr. WALKER, Dr. Fleming was elected an hon. associate of the society; and on the motion of Mr. JAS. SIMPSON, of Maidenhead, and of the PRESIDENT respectively, Mr. Chas. Pack, of Maidenhead, and Mr. C. W. Griffis, of Reading, were unanimously elected members.

Other routine business having been transacted, the meeting unanimously resolved (on the proposition of Mr. JAS. SIMPSON, seconded by Mr. BARFORD) that the next meeting of the association, to be held in July, take place at Maidenhead.

Mr. KIDD next proposed the following resolution, notice of which was given at the last meeting, viz. :—"That it is expedient for the welfare and encouragement of the members of the Royal College of Veterinary Surgeons that they have free and unlimited choice in the selection of members of the profession to serve on the council. The members of this association therefore petition the President and members of council to take the necessary steps to have Clause 9 rescinded of Supplementary Charter, granted by Her Majesty the Queen on the 23rd day of August, 1876." He said his reasons for taking up this matter were, first, to draw the attention of members of the profession to the clause, and, second, that the subject might be discussed so as to draw hearty and unanimous support to those gentlemen who may take it up at the Council Board. At no period were members of the profession, individually, held in so much esteem by their clients and the public generally than the present, and at no period had the profession, as a corporate body, had so many obstructions to encounter and drawbacks to contend with as in the immediate past and the present time, due—to some extent at least—to the action of some of its own members, and from whom the profession has in a special degree a claim for consideration. For example, inspectorships under the Contagious Diseases (Animals) Act naturally should be given to members of the profession and not make them (inspectors) subordinates to policemen. The title of veterinary surgeon should exclusively belong to those who have studied veterinary surgery and medicine, and who hold a diploma. Veterinary surgeons' claims to inspectorships of meat are ignored, whilst they are best qualified to protect the public against the dangers arising from using diseased meat. The profession has to contend with a system of quackery of a *high* class which is being established. And last, but not least, the profession is threatened in the near future to be deprived of the freedom of choice of members to serve on the council. This is a serious matter, and one which will affect us all if carried out. It is against the spirit of the times and will thrust the pro ession, both Fellows and members, into a position from which it cannot rise for a considerable time. There would be nothing to prevent the first council of Fellows from approaching Her Majesty for another charter to give them the power of self-election, and many other things which would militate against members, and which they would be powerless

to prevent. I have nothing to say against any Fellow. There are some—and I hope many—Fellows desirous to have the obnoxious clause rescinded; there may, however, be some who will do their utmost to retain the clause, as there are always individuals to be found who think of themselves first, themselves last, and themselves only. I do not think that members should be taunted by Fellows that the degree is sour grapes, that "they have not the aspiration, the courage, or the knowledge to attempt it." Because there were gentlemen who refused the proffered honour (hear, hear), and there are those who do not approve of it in principle (hear, hear), and there are many members who are as able to pass the Fellowship examination as any who have passed it, and who, if elected as members of council, would be an honour to the Board and a credit to the profession. Will any one accuse the President of the Royal College of Veterinary Surgeons "of want of courage, or the lack of knowledge to attempt it"? Would it not be humiliating to see him submitting himself for examination? Will the profession be indifferent to their own interests by seeing such as Mr. Simpson thrust out of the council? Surely this would be ingratitude for what he has done for the profession; and if we retain for him a seat at the Council Board I venture to assert that he will continue his interest in all things affecting members. I am one of those who do not approve of the degree in principle, and consider that it would have been to the best interests of the profession had it been made an honorary degree, and conferred on those who had distinguished themselves as ornaments of the profession, without examination and without payment. Is it reasonable to think that 2,600 members should be restricted to select members of council out of a total of 103 Fellows? The degree cannot make them better practitioners, nor can it qualify them for a seat at the Council Board, any more than the diploma can qualify members to be professors. Much might be said on this point, but I have already trespassed on your time, and I would only add that if the members of the Royal College of Veterinary Surgeons would be true to themselves, by speaking out boldly, and with one voice, in defence of their rights, in asking that clause 9 be rescinded, I feel sure they will not appeal to the members of council in vain.

On the suggestion of Professor PRITCHARD, Mr. KIDD amended his resolution by substituting the words, "That it is absolutely necessary," for the words, "That it is expedient."

Mr. WALKER (Oxford) had very great pleasure in seconding the resolution. He had read over the Supplementary Charter therein referred to, and his thought was, "Well, human nature is human nature, and is always selfish." He would not say those Members of the Council who were members in 1876 were the most selfish men in the world, but he did think they were possessed of a fair quantity of that commodity (laughter), because they not only took the liberty of electing themselves, but did it at a cheap rate. They elected themselves by paying a fee of ten guineas for the Fellowship degree, and they asked those who came after them, and who were their juniors—he would not say in knowledge, but in years—to pay a penalty of fifteen guineas. He could not himself see why those individuals should have saddled their successors with the payment of a larger sum. It was said that the degree was intended to promote and encourage the study of veterinary medicine and surgery; but he failed to see how that end could be attained by men electing themselves without passing any examination whatever. The number of Fellows at present upon the list was 103, and out of that number only thirty-seven had taken the degree by examination. But upon referring to the list of Fellows, he found there must have been some irregularity in their election, as three were entered in 1882 without having passed any examination. He did not know how many had been rejected at

the examination. (Professor Pritchard : I think only one.) He (the speaker) was not behind the scenes ; but he found three names appeared in the 1883 list without examination, and he should like to know how that occurred. (Hear, hear.) If the Fellowship degree was to be open, it ought to be open to the whole of the profession, and not to certain individuals. (Hear, hear.) He should like to know also whether those who held that degree were superior to their brother members in the profession because they did hold it. He did not see that such a degree, which a man got for ten guineas, could elevate his status in the profession at all. (Hear, hear.) He should not, however, so much object to the Members of the Council conferring degrees upon themselves ; but he had a most decided objection to their taking into their own hands the ruling, the working, and, in fact, the management, of the Royal College of Veterinary Surgeons entirely. (Hear, hear.) He thought whatever rules were made should be made for the benefit of the profession, and not for individual members, and he said that rules which excluded, say, 2,600 of the members from having any voice at the Council Board must be ruinous to any institution, and must retaliate on the heads of those who framed them. He therefore had the greatest possible pleasure in seconding the resolution, and he felt grateful to Mr. Kidd for having brought it before this meeting. Looking at it altogether, he thought the existence of the present state of affairs a gratuitous insult tothe professon. (Applause.)

Mr. SIMPSON (Maidenhead) thought it possible that some present were not thoroughly acquainted with the wording of the clause referred to by Mr. Kidd, and more particularly of No. 9, which runs : "At the end of ten years from the date hereof (1876) no Member of the said College, save and except the present Members of the said Council, who shall not also be a Fellow of the said College, shall be eligible to be a Member of the Council, or to serve as a Member of the Board of Examiners." That seemed to him to be rather an arbitrary clause. (Hear, hear.) Possibly if the clause had met with favour by the profession, there would have been more members present themselves for examination for the Fellowship degree. As it was, he found, on referring to the list, that irrespective of those gentlemen who had the distinction conferred upon them by reason of what might be termed long service—for they must have been in practice fifteen years prior to the granting of the Charter, and many excellent members there were amongst them, one of whom he was glad to see amongst them that day—only thirty-seven members of the profession had presented themselves for examination for the Fellowship degree. He hoped that what he was going to say with regard to army veterinary surgeons would be properly understood. There were many most excellent men amongst that body ; but there was the fact that eight out of that thirty-seven were army veterinary surgeons. The majority of the army veterinary surgeons—or, at any rate, half—were thus in a position to represent at the Council Board the feelings and wishes of the civilian practitioners ; but many of them were totally unacquainted with the ways and doings of the ordinary practitioner there, just as a civilian practitioner would be incapable of representing to the Veterinary-Surgeon-in-chief to the Army what the requirements of the army were. (Hear, hear.) That, therefore, reduced the number from thirty-seven to twenty-nine. Next, there were Fellows who were not practising in England at all—two being in the United States—and that left them with twenty-seven gentlemen who, as time went on, would be removed in the natural course of events, or would retire. Considering that thirty-seven gentlemen had only presented themselves for examination—at the rate of four per annum—and if they allowed for occurrences which would crop up amongst that number, at the end of the year, when the clause came into operation, they would have only something like twenty-eight men left to

select from as members qualified to sit at the Council Board. Some of that number were, he knew, doing very little practice. They might be very excellent men, but they were not representative practitioners, and some of them were certainly not gentlemen for whom they would vote for the Council. Next year the gentlemen on the Board who, from various reasons, had not gone in for the examinations, would vacate their seats; and they would be called upon to elect the Board from those thirty-eight who had been fortunate enough. They had enjoyed the fun of going in for an examination for the Fellowship degree. He hoped that if the resolution was carried, Mr. Kidd would propose that copies be sent to all the Veterinary Medical Associations in the Kingdom. (Hear, hear.) The great advantage of those associations was seen in such matters, as they gave the members an opportunity of meeting together, and expressing their views, which unquestionably represented the feeling of the profession at large. (Hear, hear.)

Mr. G. A. LEPPER fully endorsed every word that had been said on the subject. He could see clearly, as time went on, the management of veterinary matters would, under the present Charter, fall almost entirely into the hands of army veterinary surgeons. They all knew that after a man got settled down in country practice he had not the time at his disposal to go up for examination for the Fellowship degree. He should be very pleased to render any assistance he could to get the clause expunged. (Applause.)

(To be continued.)

MONTREAL VETERINARY MEDICAL ASSOCIATION.

THE meetings of the Montreal Veterinary Medical Association were held on the dates specified below.

The quality of the essays read, and the interest displayed by its members, shows the increasing success of this association, and its value to the students cannot be over-estimated. The library now contains over 380 volumes, not only comprising the latest works on veterinary science, but also the latest works on human medicine and pathology.

The regular fortnightly meeting was held in the College on Thursday evening, December 11th, 1884, the President, Mr. M. C. Baker, V.S., in the chair.

After the usual business, Professor Mills, of McGill University, was unanimously elected a member.

Mr. CLEMENT, V.S., read a communication on the "Removal of a Cystic Tumour from the Neck of a Horse." The operation was performed while the patient was under the influence of chloroform.

Mr. LAMB then read a very interesting paper on "Horse-shoeing," taking up its history, etc., and treating of the preparation of the foot, and application of the different shoes; also how to overcome various defects of conformation and quality of the hoof by proper shoeing.

The paper elicited considerable discussion.

The meeting then adjourned to January 8th, 1885.

The regular fortnightly meeting was held in the College, on Thursday evening, January 8th, 1885, the President, Mr. M. C. Baker, V.S., in the chair.

Mr. SCOTT communicated a case of Purpura Hæmmoragica, on which there was considerable discussion.

Mr. KEYS then read a paper on "Glanders," taking up its history, geographical distribution, pathology, pathological anatomy, symptoms, and contagious nature, etc.

There was considerable discusssion.

The meeting then adjourned to February 5th.

The regular fortnightly meeting of this association was held in the College on February 5th, the President, Mr. M. C. Baker, V.S., in the chair.

Mr. E. W. HOARE communicated a case of Chorea as a sequel of distemper in a dog. The treatment was by the administration of nux-vomica, alternated by Liq. arsenicalis. The case was brought to a successful termination.

Mr. GARLAND then read a paper on "Strangles," describing the regular and irregular forms of the disease, symptoms, causes, and treatment, etc.

A lively discussion followed on the various points.

The meeting then adjourned.

The regular fortnightly meeting of this association was held in the College on February 19th, 1885, the first Vice-president, Mr. Charles McEachran, V.S., in the chair.

A vote of thanks was passed to Mr. F. S. Billings, of Boston, U.S., for his donation to the library of a German work.

Mr. CHARLES MCEACHRAN, V.S., then communicated some cases of lead poisoning in cattle and horses, which came under his notice while on a visit to Perth, Scotland. The poisoning in question was caused by lead ore being left on the pasture fields.

A discussion took place as to the symptoms and the best treatment of lead poisoning.

In these cases, Magnesium sulph. and Ac. sulph., with demulcents, was the treatment adopted.

Mr. SCOTT then read a paper on "Anthrax," taking up its history, symptoms, pathology and contagious nature, prevention, etc. He recommended the strongest preventative measures, such as burning the dead animals, and all they came in contact with.

Considerable discussion followed.

The meeting then adjourned to March 5th.

E. W. HOARE, *Librarian, M.V.C.*

DICK'S ROYAL VETERINARY COLLEGE.

THE presentation of prizes in connection with this College took place in the Council Chambers, Edinburgh, on Saturday, April 11th—Lord Provost Sir George Harrison presiding. At the outset the Lord Provost congratulated the prize-winners, and said he had no doubt they would feel it to be their duty to do honour to the institution in which they had received their education. (Applause.) Principal Walley mentioned that the competitions for the prizes extended over a period of three sessions, and that they were distributed previous to the students going up to the final examination for the diploma. He congratulated Mr. Lloyd on the prominent position he had taken in the competitions. The Lord Provost then presented the prizes, with the exception of the gold medal given by Mr. Harris, depute-clerk, which was handed to the winner by Bailie Clark. The following is a list of the prize-takers :—

Mr. John S. Lloyd, Treflach, Oswestry—Gold medal chemistry (presented by Dr. Aitken) ; gold medal anatomy (presented by Professor M'Fadyean) ; gold medal veterinary medicine and surgery (presented by Professor Walley); and the gold medal cattle pathology (presented by Mr. A. Harris). Mr. Whitecross—Gold medal physiology (presented by Dr. James). Highland Society's Silver Medals—Chemistry, Mr. John Barr, Kirkcudbright ; physiology, Mr. J. S. Lloyd ; materia medica, Mr. J. S. Lloyd ; practical pathology, Mr. J. S. Lloyd ; botany, Mr. Whitecross ; veterinary medicine and surgery, Mr. George Kinnell, Corsock, Dalbeattie ; cattle pathology, Mr. George Kinnell ; anatomy, Mr. George Kinnell and Mr. Whitecross—

equal. College Silver Medal for Great Merit—Mr. Percival Snaith Darlington. Honourable Mention and Honour Certificates—1, Mr. John Armstrong, Penrith; 2, Mr. Robert Reid, Auchtermuchty. Certificates of Merit—presented by Professor Walley—as Pharmacists and Clinical Assistants—Messrs. Lloyd, Kinnell, Snaith, Reid, Barr, R. E. Thomas, and Armstrong. Silver Medals of the Edinburgh Veterinary Medical Association for the best essay of the session—1, Percival Snaith, Darlington; 2, John A. Hawk; 3, Henry Potts. For the best communication of the session—1, John Barr, Kirkcudbright; 2, George Kinnell. First Class Honour Certificates in Veterinary Medicine and Surgery—Messrs. Lloyd, Kinnell, Snaith, Armstrong, Reid, Rickell, Barr, Gemmell, Meek, and Tyndall. In Cattle Pathology—Messrs Lloyd, Kinnell, Snaith, Armstrong, Reid, Barr, Rickell, Gemmell, and Tyndall. In Practical Pathology—Messrs. Lloyd, Kinnell, Snaith, Armstrong, Barr, and Reid. Educational Certificate of Merit—R. E. Thomas.

Principal Walley, at the close of the distribution, said that the examinations were, like those in other departments of scientific teaching, very strict, and hence he could not congratulate them upon the number of passes. They might expect that at the present time there would be a great absorption of veterinary students into the army, and if such were the case his only sorrow would be that he could not accompany them. (Applause.) The Lord Provost also addressed the students, pointing out that they must "scorn delights and live laborious days" if they were to be in the front rank of their profession. Bailie Anderson proposed a vote of thanks to the Highland and Agricultural Society for the medals which they had presented to the college; Bailie Clark proposed a vote of thanks to Mr. Harris for giving a gold medal; and Principal Walley moved a vote of thanks to the Lord Provost for presiding. These motions having been cordially agreed to, the proceedings terminated.

PROCEEDINGS OF THE SECOND GENERAL MEETING OF THE NATIONAL VETERINARY ASSOCIATION.

(Continued from page 53.)

At the annual meeting of the East Kent District of the British Medical Association, held 8th May, 1884, the President, Dr. Robinson, read a communication on an "Outbreak of Epidemic Sore Throat following the Use of Milk from Cows suffering from Aphthous Fever;" and as it is not only the most recent, but the most convincing demonstration of the transmission of Foot-and-mouth Disease by milk supply from cows to human beings, I extract the following:—"During the early days of the month of February, in the present year, a remarkable outbreak of Sore Throat occurred in Dover, which, on account of the suddenness of the outbreak, the severity of the symptoms, and its chief prevalence amongst those occupying the best houses in the town, attracted no small amount of public attention, and naturally provoked a large amount of interest in the investigation as to the cause thereof.

"Controversy on the subject waxed warm, especially when it became known that the course of the epidemic corresponded most intimately with the track of a particular milkman, and that the milk supplied by this man was believed to be the vehicle of the specific poison occasioning the epidemic.

"On the one side were ranged those who had suffered most grievously from the tainted milk, and who, therefore, felt correspondingly indignant upon the subject; whilst on the other side were those who, in the kindness of their hearts, sympathised with the poor milkman, whose trade they feared would be ruined by the disclosure.

"Within the short period of four days 188 persons were attacked by this malady, which, in its leading features, presented a close resemblance throughout the whole series of cases. The symptoms varied, of course, in severity, both at the onset of attack and in the sequelæ that followed; but local inflammation of the throat, accompanied by enlargement of the lymphatic glands of the neck, was the prominent sign met with in the individuals attacked, *vesicular eruptions* preceding and accompanying the inflammation. During the week ending February 9th, 205 persons were attacked, all of whom obtained their milk supply from one particular dairy. The houses in which these people resided were distributed in forty-two different streets in the town, widely separated from each other.

"In nineteen of these streets (or nearly half of the whole number) every house supplied by this milkman was invaded by the epidemic, whilst, with one or two doubtful exceptions, no other cases could be heard of in the same streets—at any rate, none of sufficient gravity to require the services of medical men. Thus the striking fact was exhibited of an exact correspondence between the milk supply and the houses invaded by the epidemic.

"In the remaining twenty-three streets where this milk was delivered, out of eighty-six houses supplied, fifty-one were invaded by the disease.

"The number of persons attacked in each house stricken averaged 2·5 per house.

"In thirty-one houses there was only one case in each, in twenty-one houses two cases in each, in fifteen houses three cases in each, in seven houses four cases in each, in five houses five cases in each, in three houses six cases in each, in one house seven cases, and in another nine.

"In addition to various degrees of susceptibility possessed by different individuals, there were other circumstances which would account for the escape of some of the dairyman's customers while others suffered. In the first place, he delivered special milk obtained from healthy cows, separately from that milk which had been blended with the infected milk; thus at one house an officer and his family had a special supply of milk in a sealed can, obtained from the dairyman's own cows, which were perfectly healthy, whilst the servants had their milk from the mixed milk: the servants suffered, the family escaped!

"There was also a separate supply of what was called 'nursery milk,' for which a higher price was charged, and this also was unblended milk. At houses thus supplied the inmates escaped, unless cream (*all* of which the dairyman obtained from the implicated source) was also purchased and taken, as it often was, with fruit at luncheon or dinner, or in tea.

"A marked feature in the epidemic was the manner in which the servants suffered, and this was accounted for by their admission that they had not only, in many instances, partaken of the infected cream, but were large consumers of the milk also.

"From the almost simultaneous character of the outbreak, especially during the first three days, it was clear that some common cause was at work in the production of a crop of cases so closely resembling each other; and when it was found that the houses in particular streets, distributed over different parts of the town, which were supplied with milk from a particular dairy, were the houses selected by the epidemic visitor, it became apparent that the milk, as in many previous epidemics, was acting as a vehicle of disease.

"My own experience, which extends back to 1872, in connection with the propagation of disease by milk, has chiefly been where outbreaks of Enteric Fever and Scarlet Fever have been diffused through contamination of the milk with the specific poisons of these diseases. I have, however, notes of cases where disease in the human subject has been developed after the drinking of milk from diseased cows, but never to the same extent as in the present epidemic.

"For the purpose of ascertaining what particular taint was present in the milk, which was calculated to occasion this particular epidemic, a searching inquiry was made, and the following facts collected. The implicated dairyman obtained his supply of milk from twelve cows kept on his own premises at Dover, and also from three farm establishments in the country. All three places were visited, and diligent search made for any evidence of disease amongst either the cows, or people living or engaged on the premises.

"At one of these establishments in the country it was found that Aphthous Fever had broken out amongst the stock on January 14th, and that milk from some of the affected cows was delivered to the Dover dairyman, and, after being mixed with other milk, distributed to his customers. Moreover, it was from this infected farm alone that the Dover dairyman obtained the supply of cream furnished to his customers.

"At the beginning of the inquiry it was stoutly denied that any of the milch cows had suffered from disease, and a certificate from a veterinary surgeon and inspector to this effect was obtained and published. Recourse was had to the police, and the truth gradually oozed out, until the facts, as above stated, were established beyond dispute; then the farmer not only admitted the fact of the disease amongst the milch cows, but confessed to the sale of their cream and milk in Dover, not only to the dairyman whose milk was specially implicated, but also to another milkman, on two separate occasions, amongst whose customers a second simultaneous outburst occurred. Thus a second experiment was performed with this tainted milk, amongst another set of individuals, with like results to the first, contributing (if such corroboration was necessary) additional evidence of the presence of poison in the milk supplied from the infected farm. Thus it was clearly established that the sufferers in this epidemic partook of milk which had been secreted by cows suffering from Foot-and-mouth Disease, an epizoötic malady typically characterised by vesicular eruptions and soreness of mouth and feet, but, like human diseases, constantly presenting all manner of variations, from the most simple, and often unrecognised attack, to the malignant form which was noticed in the summer of 1872, in some herds of Iceland cattle which were brought to Leith and Edinburgh in that year. The majority of persons who suffered during the Dover epidemic presented two prominent symptoms in common, viz., inflammatory sore throat and enlargement of the lymphatic glands; but the lesions produced varied considerably in different cases.

"The vesicular eruptions were followed either by a raw, red, œdematous appearance of the mucous membrane, or white patches, and the ulcers which supervened assumed in many instances a chronic character, with thick, puckered edges, and were a long time in healing.

"When the inflammation of the tonsils went on to suppuration, recovery was much slower than after common Quinsy, and the enlarged cervical glands remained tender, red, and swollen long after the throat symptoms had subsided, resembling in this respect the sequelæ of Scarlet Fever. Erysipelas and purulent formations were concomitants also of the epidemic. In some instances the feet of those who suffered were swollen and painful, simulating Rheumatism; and in one case Eczema occurred between the toes of the feet, the affection being accompanied with very fœtid exhalation.

"A fatal termination resulted in the cases of two children, who had very bad throats and mouths, with the extension of the disease, in one case, to the respiratory track, their deaths being, in the opinion of the medical attendant, due to the poisonous effects of the milk. Two persons who laboured under chronic Kidney Disease were respectively attacked with sore throats and died on the same day; other people in the same houses suffering also from the epidemic Sore Throat.

"In one house, three persons were attacked on the 4th February with Sore Throat. One of these was a servant girl, who was sent home, and seen by the hospital surgeon on the 9th, at 12 a.m., and died at 4 p.m. Mr. Wood gives the following history of the case :—

"'F.S., attacked five days previously with sore throat and pains in the limbs, complained on the 8th of great pain in the epigastric region, and dyspnœa. There was a purple-red patch on the left cheek, extending to the nose. At 3 p.m. on the 9th she passed into a state of coma, and died at 4 p.m.'

"Mr. Wood says this was an obscure case, but thinks it possible that it was one of blood-poisoning. Instances of the effects of this tainted milk upon domestic animals were narrated to me, but I can verify only one from personal observation. This was a dog to which a quantity of the milk in an uncooked condition was given to drink. The symptoms which this animal portrayed were a blistered and inflamed condition of the mucous membrane of the lips and mouth, and inflammation of the skin and cellular tissue between the toes of one foot, terminating in suppuration.

"The preceding description contains, I believe, a fairly accurate account of the facts relating to this epidemic.

"In extent and severity the outbreak exceeds, in a marked degree, any previous records of the results which have followed the use of milk from cows suffering from Foot-and-mouth Disease. It is, however, quite possible that many obscure epidemics of throat disease may have been occasioned by a similar cause to the above, although the history may not have been sufficiently clear to have established the fact. Dr. Eade, of Norwich, and many others, have had a strong suspicion that this is the case, and there is no doubt that epidemics of Sore Throat have been more prevalent during and following the increase of Foot-and-mouth Disease in the country.

"The official returns show that 461,000 cases of Foot-and-mouth Disease were returned in 1883, against 37,000 in 1882. The difficulty of obtaining truthful evidence is exemplified in the history of this epidemic. If I had been content with the first statement of the farmer, that his cows had not suffered with the Foot-and-mouth Disease, or with the certificate of the veterinary surgeon to the same effect, the salient point in the history of this epidemic, viz., the existence of disease amongst the milch cows, would still have remained in obscurity. Mr. Power, in concluding a report to the Local Government Board on an outbreak of Sore Throat of a diphtheritic character, at Hendon, last year, due to infected milk, refers to the coincidence of ropy character and infectiveness in the milk, etc., and after saying that the farmer was explicit in stating that none of his cows had been suffering from disease (a statement fortified by the certificate of a veterinary surgeon), concludes his report with this very terse statement upon the evidence respecting the freedom from disease amongst the cows :—

"'Such assurance might be entirely comforting, but for a growing misgiving to the effect that ailments of animals, so trivial as to be disregarded or even unnoticed by people about them, may have larger concern with occurrence of specific disease in the human subject than has heretofore been thought likely.'

"With regard to this Dover epidemic, there appeared to be, not only a special infection in the milk, but a septic poisonous influence exerted on those who drank it.

"In considering a cause for this condition of the milk, it becomes necessary to revert to the source from which it was derived. The diseased cows and stock were kept in low, close sheds surrounding a small yard, which was full of decaying manure, rotting turnips, and the infected excreta, so that the specific poison, after elimination from the animals, would, instead of living structures, have for its pabulum decomposing and putrefactive organic matter,

swarming, doubtless, with the bacteria attending these changes. That milk absorbs with great facility volatile matter is a well-known fact, and on these premises the milk and cream especially would be tainted, first, from the infected cows directly, and secondly, from an atmosphere laden with germs fed on animal and vegetable substances undergoing putrefaction; such milk would possess a peculiarly tainted character, and would therefore be calculated to produce the specially poisonous effects noticed during the epidemic. That the specific organisms of various zymotics may undergo modification according to pabulum and environment, is only in accordance with what is observed throughout the animal and vegetable kingdom. The conviction that Scarlatina poison, after residence in sewers or cesspools, obtains the power of inflicting the various lesions seen in throat affections, particularly those approaching a diphtheritic character, has long forced itself upon the minds of many observers, from the fact that over and over again such manifestations of the disease have occurred in localities visited previously by Scarlatina, when facilities existed for the storage of this fever-poison in some sewage collection, and its subsequent liberation and diffusion therefrom. In an epidemic of Sore Throat, which broke out in the early part of this year, in a village about twenty-five miles from Dover, four recent outbreaks of Foot-and-mouth Disease had occurred, and the chief supply of milk was obtained from one of the farms where this epizoötic had occurred. The yard surrounding the cowsheds, and abutting on the dairy, was piled up with dung and filth, which must have been charged with the poison of the disease, and the milk, therefore, would be liable to absorb the virus. In one of the first houses invaded, the father of the children had been engaged in turning over the infected manure, and many of the children attacked had to pass the manure, which was spread out close to the public road. The eruptions about the lips and the alæ of the nose were very similar to that noticed in persons who had drank milk from aphthous cows; but the appearances in the throat approached nearer the diphtheritic character. There was no evidence of recent importation of either Scarlet Fever or Diphtheria; the only specific poison that appeared to have established a habitat in the locality was that of Foot-and-mouth Disease; and, from the history and characteristics of the epidemic, there was reasonable ground for believing that the source of the poison was derived from cattle, the medium in this case being infected excrement. I have referred to the last-mentioned outbreak here because a record of the facts observed during its investigation may, in connection with the foregoing description of the Dover epidemic, help to elucidate some of the difficult problems involved in the etiology of throat affections."

Pleuro-Pneumonia Epizoötica.

This disease is dependent on a specific organism, and only attacks cattle. In sections of the lungs, and in blood drawn from the living animal, my colleagues and myself have invariably found numerous micrococci. They are distinctly oval, and in the blood occur single as dumb-bells, in colonies, etc. They are well shown by staining with Bismarck brown.

By inoculation or otherwise I have never yet transmitted or seen the disease transmitted to any other class of animals, and by not a few veterinarians it is believed not to be inoculable even in cattle, and certainly *it must be conceded that inoculation does not produce the characteristic lung lesions.* The blood poison or microbe selects the lung tissue for its culture and growth, and is given off in the breath exhaled by the affected creature, and if the inoculation theory be true, it is also fixed in the tissues and juices of the lung. I have fed dogs and other animals on the diseased lungs, and on the flesh, for long periods of time, and observed no bad effects, but the reverse,

and I have therefore been forced to conclude that the carcase of a pleuro animal in the early stage of the disease is not unfit for human food.

A great deal has been written regarding the appearances presented by the flesh of animals which have been slaughtered during the progress of the disease, but I have failed in observing them, and granting that the lung lesions are confined to one side of the chest, and the Inspector is only allowed to examine the one half of the carcase, in the majority of cases he could with no reliable authority say whether the flesh was that of a diseased animal or not, and certainly he could not name the disease.

While I incline to the opinion that the carcase of an animal affected with Pleuro-pneumonia Epizoötica is innocuous, still it does not follow that it is nutritive, and in all stages fit for human food. If the animal is in fair condition at the date of slaughter; if the effused products in the lung or lungs have not undergone softening, or the formation of pus, and the flesh of the carcase, after hanging twenty-four hours, presents a firm appearance, and if the cut across the muscles down to the bone is dry, and the fat pearly and firm, then I consider that carcase fit for human consumption, and such carcases have always been devoted to that purpose in the city of Glasgow, and without complaint.

From the "Centralb. fr. d. Med. Wiss.," No. 9, 1884, we learn that T. Poels and Dr. W. Nolen, in Rotterdam, have ascertained that in Pleuro-pneumonia of cattle, the pulmonary exudations contain micrococci, which, in their morphology and mode of growth in artificial cultures, are identical with the micrococci of human Pneumonia. They also assert that *artificial cultures of the micrococci, derived either from human Pneumonia or from Pleuro-pneumonia of cattle, produce in cattle the typical Pleuro-pneumonia.*

That micrococci are plentifully present in the pulmonary exudations of the human subject or of cattle, is only what might be expected, but that *artificial cultures of human micrococci, when inoculated on cattle, produce the specific contagious Pleuro-pneumonia of cattle*, is so contrary to all my experience that I will not in the meantime accept it as proven.

Anthrax, or Splenic Fever.

This disease is also dependent on a microbe, the "Bacillus anthracis," an organism which was discovered in 1850 by Rayer, and about the same time by Davaine, in the blood of animals that had died of Splenic Fever; but as organisms of various kinds are to be found in the blood of animals which die from disease, no specific importance was attached to it at the time. In 1876, Dr. Koch, a German physician, succeeded in isolating and cultivating the organisms, and in our own country, and about the same time, Dr. Sanderson achieved the same success, and the publication of the experiments performed by them have made us familiar with the life-history of the microbe.

As seen in the blood and tissues, the Bacillus anthracis in its earliest stage of development appears a short protoplasmic rod, in length from one to four times the diameter of a human red blood-corpuscle. The rods vary in length; if watched, they are observed to grow, and, having attained a certain length, to divide. The rod, externally, is formed of a sheath, and its interior is filled with protoplasm. In its early stage the rod appears homogeneous, but in a short time it changes, and presents a granular mass, broken here and there. These little masses ultimately form the spores or seeds. When the seeds are fully formed, the sheath gives way, and the spores are thereby liberated. In the spores or seeds, as distinguished from the rods, the contagion in its most deadly and persistent form apparently exists, and the vitality of the organism is something almost incredible.

If, for example, the blood containing fully-developed "spores" is dried (even although it may be into the condition of a powder or dust), and thereafter wetted and allowed to dry and form again a dust, and even allowed to remain in the midst of putrefying matter, its results on inoculation are positive and deadly. Koch subjected the blood to these tests, and after four years' retention in his possession, on inoculation it was in every case as positive and destructive of life as fresh blood. Another important fact in connection with the life-history of this microbe is this, that it can be cultivated or grown artificially, and not even in connection with a living body. Koch grew it in the aqueous humour of the eye of the ox. In two hours the rods commenced to lengthen, and in four hours they had increased from ten to twenty times in length. A sound animal inoculated with the blood of an affected animal almost immediately thereafter shows symptoms of illness, and rarely lives longer than twenty-four hours. The microbes multiply with such rapidity that the capillaries become filled with them, the blood is robbed of its oxygen, and the circulation stopped.

Dr. Sanderson has also discovered that brewers' grains is a capital field for sowing and cultivating bacilli, the smallest quantity of the organisms introduced to the grains rendering the whole fit to propagate the disease by inoculation. The Bacillus anthracis can also be cultivated in an infusion of hay, and in serum and urine.

Dr. Cameron, M.P., Glasgow, in his able address to the Social Science Congress in 1881, on "Health," speaking of the experiments I have referred to, and their importance in enabling us to understand how zymotic diseases originate and spread, says :—"Dr. Koch's success was of immense scientific importance, for whereas it had before been impossible satisfactorily to observe the development and peculiarities of any of these organisms, or even to prove beyond possibility of cavil that it was they, and not the organic media in which they were found, which, when inoculated on other animals, gave rise to the disease, it now became practicable to remove them from all possible contamination, and to prove that this or that organism was really the cause of this or that malady."

The flesh of an animal affected with this disease is not only unfit for human food, but generally destructive to life in all animals. Veterinary and medical journals teem with instances recording fatal effects from partaking of the flesh. Dogs and cats, licking the blood, die from Malignant Sore Throat. The human subject, partaking of the flesh, or accidentally inoculated —as in dressing the carcase—succumbs to that form of Anthrax termed "Malignant Pustule." The skin and wool, or hairs of an affected sheep, goat, or ox, if saturated with the blood at or immediately after death, may become the vehicle of contamination and death by inhalation of the microbe years after the death of the affected animal.

In support of this opinion I quote the following from Dr. Aitken's standard work on the "Science and Practice of Medicine" :—"The sorting of alpaca and mohair has long been known to be attended with considerable risk to life. Also the sorting of all wools and hairs which are dry, dusty, and more or less filthy from contamination with decomposing animal matter, particularly if 'fallen fleeces' are present, and all kinds of goats' hair, camels' hair, low-class East Indian, Persian, and such-like wools, are injurious to health, (1) from the dust and fine short hairs which arise from them, exciting chronic disease of the lungs ; (2) from the amount and virulence of poison from decomposing animal matter that is liberated, producing a low form of Pneumonia (Septic Pneumonia) ; (3) from a specific blood-poison derived from the fleeces of animals which have died from Anthrax, producing the rapidly fatal disease now known as 'Wool-sorter's Disease.' This disease has prevailed in Bradford and its neighbourhood for more than forty years, and still continues

as severe and frequent as ever it was, overclouding the life of the 'sorter' with a mysterious shadow, and threatening him daily with death. In December, 1879, a case of this disease occurred in Bradford, in which an examination of the blood showed the disease to be Anthrax; and during April and May, 1880, five more cases occurred in the same neighbourhood, four of which were rapidly fatal, *i.e.*, within three or four days a malignant pustule formed in three of these cases. The men had been sorting what is known as 'van mohair.'"

Dr. Vacher, to whom I have already referred, writes :—"There is another animal disease which may certainly be transmitted by specifically infected food, *i.e.*, Anthrax or Splenic Fever. Here, however, the fluid in which the contagium lives being the blood, all the tissues must be regarded as infective—the muscles markedly so. One does not hear of infection by milk because the secretion is commonly checked or entirely arrested, and the course of the disease is rapid and fatal. Still, there is at least one well-authenticated case of this disease being conveyed to a human being who drank the milk of an infected cow. Cases of infection by means of meat taken as food are not frequent, because Anthrax flesh readily decomposes, and has so bad an appearance that it can only rarely be introduced into the market. That this disease is transmissible to man is, unfortunately, too certain, and even those who contend that it is only thus transmissible by inoculation, will admit that food may come into contact with a wound in the mouth and be the inoculating agent."

Bovine Tuberculosis—Perlsucht.

This disease, which is characterised by the formation of little bodies termed tubercles within and on various organs and membranes of the body, has, by the recent discoveries of Koch, been traced to be due to the presence of a special microbe, "Bacillus tuberculosis." *All bodies termed tubercles* do not, however, contain this microbe, and this is a point of grave interest alike to the veterinarian and the general public. Further, a naked-eye examination cannot decide whether the parasite is present or absent, and, moreover, it requires a special staining, and a considerable acquaintance with microscopic detail to be able to detect the organism when present.

Bovine Tuberculosis, like human Tuberculosis—Phthisis Pulmonalis (the Consumption of the general public)—is hereditary and infectious. Inoculations with crushed and softened tubercle have transmitted the disease to a great variety of warm-blooded animals—in truth, it may be said that few animals can resist inoculation. The disease has also been transmitted by ingestion of the flesh and tubercles, and the drinking of the milk of affected cattle. Tappeiner (Virchow's "Archiv," vol. lxxiv., 1878) caused dogs to inhale phthisical sputum, which was sprayed into their cage for a certain time once or twice a day, and for a number of days in succession. As a result he produced Tuberculosis in eleven days.

From the *New York Journal of Comparative Medicine and Surgery*, vol. iv., page 180, I extract the following :—"Dr. E. G. Janeway relates a number of cases of Phthisis ('Archives of Medicine'), illustrating its possible contagiousness. Among others was the case of a phthisical young man who kept a pet dog. He was accustomed to sleep with the dog nestling in his arms. The animal became affected with a cough, and subsequently died. Another dog shared the same fate; a third dog suffered from a cough, but its owner died of Phthisis, and the dog subsequently recovered."

The Bacillus tuberculosis has been found in the breath of human patients with advanced Phthisis (Dr. Arthur Ransome, "Proceedings of Royal Society," London, 1882).

Until lately it was the general opinion that bovine and human Tubercu-

losis were entirely distinct affections, but the concensus of opinion is now, I think, in favour of their being one and the same disease. Seeing, then, that bovine Tuberculosis can be transmitted with certainty to other animals by inhalation, ingestion, and inoculation, and that "tuberculous matter derived from man will produce Pulmonary Phthisis in animals, and this inoculated Phthisis may be transmitted by inoculation to other animals," it is but reasonable to conclude that bovine Tuberculosis may be, and is sometimes, transmitted to the human subject by *eating the flesh and drinking the milk* of tuberculous cattle.

The evidence on this point is, of course, of a limited character, but still, to my mind, sufficiently satisfactory, and for further information I have much pleasure in referring the reader to a report by Hertsen, Fleming, and Lydtin, "On the Influence of Heredity and Contagion on the Propagation of Tuberculosis, and the Prevention of Injurious Effects from Consumption of the Flesh and Milk of Tuberculous Animals," and which was discussed at the International Veterinary Congress held at Brussels in September, 1883.

That Phthisis Pulmonalis in the human subject is a hereditary disease, has for ages been the general opinion—in fact, no other opinion could for a moment be entertained, the sad history of innumerable families bearing but too certain evidence on this point. *That* heredity cannot, however, descend by direct transmission of the specific organism, "Bacillus tuberculosis," from the parent to the offspring, otherwise we are shut up to the conclusion that this specific organism, as a seed, may remain latent in the body for many years before it starts to fructify and grow. A more popular opinion is that the heredity descends from parent to child in a peculiar habit of body or organisation, and that this "pre-tubercular" condition of body, by climatic and other conditions to which it is daily subjected, in a shorter or longer period of time, is reduced to that condition that it falls an easy prey, an inviting field for the growth of this special form of living organism. But, as by inoculation of the Bacillus tuberculosis the body of the soundest animal proves a suitable breeding-place for the organism, it need excite no surprise when this disease appears in a family whose progenitors were known never to have suffered from the affection.

In cattle it is not often that we can clearly trace the propagation of Tuberculosis to heredity as usually understood, and even if we can, I do not entertain the opinion that the disease Tuberculosis is transmitted, but, at the most, the pre tubercular habit, and I also incline to the view that even a pre-tubercular habit of body is not necessary.

Given a herd of cattle free from the pre-tubercular habit or heredity, and these fed, housed, and attended as they generally are on a well-conducted farm in the country, and Tuberculosis will be unknown; but remove the same herd into a large city, keep them tied up in warm byres, feed them on brewers' grains, etc., and Tuberculosis will, without fail, make its appearance. Bad hygienic conditions will also, in the country, lay the foundation for the propagation of Tuberculosis.

Since the last meeting of Congress (when we had the pleasure of discussing Mr. Cox's valuable paper on "Human and Bovine Tuberculosis") I have had an opportunity of witnessing and studying the ravages produced by Tuberculosis in a herd of Ayrshire cattle, which, I think, goes far to prove that hygienic conditions have more to do in the propagation of Tuberculosis than is generally believed.

The farm in question is situated in an upland district in the county of Ayr. It has been in the occupancy of the farmer for a long period of time, and on it there has always been a herd of Ayrshire milch cows, young cattle, and sheep. A number of years ago, some ironstone and shale pits were opened in the neighbourhood, and through a part of the farm and past the

farm buildings the water pumped from these pits had to flow. Shortly after the workings commenced, it was observed that the milch cows and young stock had contracted a cough, and now and again there was a death. At all times *some* animals were ailing, and the stock never looked well. As time went on, the bulk of the herd became changed by death, sales, and new purchases—still the disease continued. The farmer was certain that the disease was connected with the water supply, and a filtering tank was erected; but, notwithstanding, the disease continued. An action was raised by the farmer, with the sanction of the landlord, against the shale-pit proprietors, and I was requested to inspect the cattle and advise.

I accordingly paid a visit to the farm, and a more pitiful sight I never witnessed. Several members of the herd, young and old, were at death's door, and reduced to skeletons, and, indeed, there was, to outward appearance, scarcely a sound animal present. I had two of the cattle killed—one far advanced in disease, and the other only slightly. Before killing the animals my colleague, Dr. Limont, Professor of Physiology and Morbid Anatomy, examined the blood microscopically, but we both failed in detecting a specific organism.

The *post-mortem* in both cases displayed general Tuberculosis—far advanced in the first animal, and rapidly progressing in the second.

After suitable preparation, the tubercular deposits in both animals were examined, and the bacilli of Tuberculosis were found plentifully present. On my recommendation law proceedings were stayed, compensation was granted, the herd slaughtered, and it was arranged to conduct the water in pipes underground. The farmer has put on a fresh stock, and as yet all goes well.

The flesh and the milk of an animal affected with Tuberculosis is, in my opinion, in all stages, unfit for human consumption, and, acting on my opinion, I have for more than twenty years condemned every carcase which has passed under my control.

Swine Plague—Pig Typhoid.

This disease, which annually destroys a large number of pigs in this country, and may be described as a veritable plague in America and France, is also, apparently, dependent on a specific organism.

Dr. Klein, of London, in 1878, announced that he had discovered in the diseased organs a form of bacterium in morphological respects identical with Bacillus subtilis, and that artificial cultures of these bacilli produced on inoculation the disease in pigs, mice, and rabbits.

Pasteur has also announced the discovery of a microbe, but it differs from that described by Klein, being a dumb-bell micrococcus and not a bacillus, and Pasteur alleges that Klein's bacillus has no relation to the etiology of this disease.

During the past week (28th June, 1884) we have had an alarming outbreak of Pig Typhoid in Glasgow. On a space of less than an acre upwards of four thousand pigs are congregated, and as the buildings (old wooden cow-sheds) are neither properly drained nor floored, and lie against each other, the malady has spread with great rapidity. The premises are also moving with rats.

Availing ourselves of the opportunity thus afforded of adding to our knowledge of this disease, my colleagues, Professors Limont and Macqueen, and myself have been busily engaged in the microscopic preparation of the various organs, with a view to testing the accuracy, or otherwise, of Klein and Pasteur's discoveries.

Owing to the shortness of time, we have only been able as yet to make a hurried examination of a lung, and the blood. In the scrapings of this

diseased lung, and in the blood, when dried and stained with aniline dyes, after the Weigert-Koch method, we have seen numerous minute *bacilli*. They vary in length, and some are smooth and uniform, while others are beaded with what are usually called "spores." They are evidently true bacilli, and they agree in all points with the description given by Klein. Their minute size, and want of specific reaction (like that of the tubercle bacillus), certainly render their recognition a little difficult at first.

Micrococci can be got from almost any diseased lung or bowel, both being exposed indirectly to the air. Accordingly they were seen in the scrapings of this lung, but there is no special reason for supposing that they are specific.

Allowing the etiology of Pig Typhoid to remain as yet a disputed point, and although I am not aware of any recorded cases of transmission of disease to the human subject by eating the flesh, still, I think that there can be only one opinion entertained as to the unfitness of the flesh of the animals as food for mankind. In the early stages of development of the disease, the symptoms are of an obscure character, and if the carcase has been dressed by a butcher, it is almost certain to pass the inspection to which it is submitted by non-professional Inspectors. When the bowels are produced, the ulcerations of the mucous membrane will greatly assist in the diagnosis, but the bowels are generally kept back, and the carcase alone produced for inspection.

Protective Measures.

Regarding the measures to be adopted for the protection of the public, I have great pleasure in endorsing and recommending those suggested by Professor Walley at our last meeting of Congress.

"The remarks I have to make on sanitary matters apply, in particular, to the supply of milk and flesh-meat to our teeming population, and, consequently, to dairies, slaughter-houses, and dead-meat markets.

"While dairies in towns and cities are compulsorily licensed and registered, no definite rules are laid down in reference to construction, flooring, drainage, ventilation, lighting, cleansing, water-supply, air-space, etc., or such rules are very irregularly applied; and whereas in some cases corporations insist upon proper attention being paid to such matters, in others, occupiers are allowed to keep their cowsheds in any condition they please. In addition to the strict enforcement of sanitary regulations, *every cowshed* in which animals are confined for milking purposes, *should be periodically*—say every three or six months—*inspected by a veterinary surgeon*, and every cow should be examined with the object of detecting the existence of any diathetic affection such as tubercle, or any disease of the udder and uterus; and whenever such disease is detected, power should be given to the Inspector to remove the affected animal to a sanatorium for further observation or to an abattoir for slaughter. If, in the latter case, it were ultimately found on autopsy that no disease existed of a nature likely to render the milk harmful, compensation should be given to the owner of the cow. The adoption of such a system as this is rendered the more necessary owing to the fact that little reliance can be placed in the statements of dairymen, that the milk (often of considerable quantity) of unhealthy cows is not sold, and the difficulties lying in the way of proving its use are too great to be overcome by ordinary legislation.

"In the matter of meat supply, while certain provisions are made for the inspection of flesh markets, and for the seizure of unwholesome flesh, diseased animals may be exposed for sale without let or hindrance. Sheep in an advanced stage of Rot, Louping Ill, or Sturdy; cattle in the last stage of Tuberculosis, Rot, and other diseases, are exposed for sale in open

markets by hundreds every year, and Inspectors have no power to prohibit such sales, or to seize animals when so exposed. Is this right? I am most certainly of opinion that *any animal exposed in an open market or sale-yard, which gives evidence of the existence in its system of important organic disease, should be seized or removed to an abattoir for slaughter; and according to the conditions revealed on autopsy, the carcase destroyed, or passed for human food.*

"In order further to prevent the unrestricted sale of diseased animals, *all private slaughter-houses should be abolished*, as the great majority of such animals are bought by low butchers, and removed quietly to some out-of-the-way place, or to a private slaughter-house, and there slaughtered, the carcases subsequently being conveyed surreptitiously to some sausage or prepared meat manufactory for use in the preparation of polonies, etc.

"Not only should great precautions be taken in reference to the inspection of meat at abattoirs, *very stringent measures should also be enforced in reference to horse-slaughtering establishments*, as I am quite sure that many of the products of slaughtered horses are used in the preparation of human food, more especially blood and intestines, in the manufacture of black puddings. Were these materials always obtained from healthy horses, the matter would not be of so much consequence.

In reference to *the system of inspection of meat at present in use, I am of opinion that it should be placed on a more satisfactory basis, and in order to do this, definite conclusions should be arrived at by a committee of scientific men, competent to deal with the matter, as to what constitutes unwholesome and unsaleable meat.*

"The conflict of opinion on this subject so often witnessed between professional men—doctors being pitted against veterinary surgeons, and not infrequently butchers against both—is very lamentable, and for the good of the public should not be allowed to exist.

"The great questions requiring to be settled are: What conditions are to be taken as evidence of unwholesome flesh? Is mere flaccidity, discoloration, decoloration, friability, or abnormal moisture, to be held as sufficient to warrant the condemnation of a carcase when no evidence exists as to the presence of disease in any of the internal organs?

"*In all cases, where it is possible to do so, the viscera of animals slaughtered under suspicious circumstances should be retained until the Inspector has had an opportunity of examining them*, and if any doubts exist in his mind as to the nature of any disease that may be presented, and its effects upon the nutrition of the flesh, he should be empowered to consult a veterinary surgeon, whose opinion might be further supported by the Medical Officer of Health, and from the decision of such experts there should be no appeal allowed.

"*Meat Inspectors, as a rule, receive no special training for their office.* They know nothing of the influence of disease upon the nutrition of muscle; they are utterly ignorant of the use of the microscope, and may be held as being quite innocent of a knowledge of even the elements of histology. *Not only should Inspectors be properly trained for their duties, but they should be submitted to a searching examination* before they are placed in the important position of guardians of the public health."

Professor WALLEY, in opening the discussion, said: The subject which I have the honour to commence the discussion of at this meeting, is one, I need scarcely say, of the highest possible importance, not only to the veterinary surgeon, but to the whole human race. You will remember that in the paper I read at the last meeting of this Association, I brought this subject under your notice. The first question to settle is—Should not this subject of

diseased meat be taken up conjointly by the veterinary and human surgeon? I think that the sister profession has not treated us as they ought to have done. Some of its members have even pooh-poohed our ideas and not hesitated to abuse veterinary surgeons in the witness-box. If there is one man more than another who is capable of giving an opinion on this subject, I maintain that it is the veterinary surgeon. He is intimately acquainted with the various conditions of animals, from their birth to their death. He knows what influences affect their fibres and tissues, while the medical man is practically unacquainted with their conditions of health or disease. I must, however, state that there are many medical men to whom these remarks do not apply; who take a deep interest in our profession, who are quite ready to hold out to us the hand of fellowship; and who know as much as we do about this question. It is the natural province of the medical profession to protect their clients against the effects of diseased meat, and if they would join us more heartily than they do a large amount of good would result. I wish to remark here that it was only a week or so ago when I had this paper put into my hands, and since then, I have hardly had time to look at it, owing to the extent of my engagements. However, I will endeavour to point out the most important points which require discussion. In the first place Professor McCall touches upon "*Trichina*" disease in man. There can be no more important subject than this in the matter of food supply. We in this country do not meet with this affection to a very large extent, but we know that it does exist; while it has been shown by Mr. Billings that American pork is largely infested with these parasites. I would throw out a suggestion here that at least two or three samples of pork in every consignment should be examined. With reference to "*Cysticercus cellulosus*," I, perhaps more than any man in this room, have reason to be acquainted with these hydatid diseases. As to Cysticercus cellulosus, it exists more than is usually believed, both in this country and abroad. On one occasion, when I was staying with Mr. Wood, we paid a visit to a farm, where our attention was called to a sheep suffering from Sturdy. We remained to luncheon and a nice-looking ham was placed before us. When asked to partake of it, I said, "No thank you," because I noticed it was a case of Measles. I intended to have brought a specimen, but quite forgot it. The farmer thought that his dogs had tape-worms, and no doubt some one else about the place had tape-worms also. There is no doubt that in every case where pigs are killed the flesh should be carefully examined. If pork is properly cooked no harm can result. But, I may ask, is pork properly cooked, as a rule? I think that the remark of Professor McCall to the effect that the flesh, unless boiled or cooked to destruction, ought not to be given to a dog, requires a little further explanation. Another form of hydatid disease, and which is on the increase, I am deeply interested in, is "*Echinococcus.*" The medical men up to within the last few years knew very little of hydatid diseases. They make some strange remarks about this affection and its origin. One gave it as his opinion that the disease had been contracted by drinking water contaminated by a pig-sty. My own opinion is, that this disease is *caused by eating raw vegetables.* It has been said to be obtained from the dog. But we have nothing to do with the dog, unless the absurd practice of ladies' kissing their dogs may give rise to hydatid disease. In this country, we know very little of "*Beef Measles*," which is frequently met with in India. In some districts, immense quantities of sewage grass are used for dairy and fat cattle, but it is a remarkable fact that there is not, so far as I know, a single case of hydatid disease in cattle on such farms. Passing to the question of "*Rinderpest*," I suppose that every man in this room will agree with Professor McCall that, in the early stages of this complaint, the flesh is harmless. Upon the question of "*Foot-and-mouth Disease*" I have something more to say. The subject of the contamination

of milk is a most important one, inasmuch as milk is one of the most effective carriers of disease germs. It absorbs them readily ; is very retentive ; and is a wonderfully fertile soil for developing them. I have very good cause to dread their effects, for during the first week I was in Edinburgh, I had three children poisoned in this way, and lost one of them. At the same time, I think that medical men very often overstep the point with regard to milk being the propagator of disease, and if we listened to them we should drink no milk at all. In the remarks quoted in Professor McCall's paper, there are censures passed by medical men upon veterinary surgeons, which I must notice. I put it to you : would any dairyman in his senses—as a rule—mix with his supply of milk for sale, a small quantity, which would contaminate the whole, give to it an unpleasant taste, and damn his business for ever in that district? Does a cow suffering from a virulent disease usually give milk in any quantity? they give a species of milk, but it is not good milk. In the paper before us the words occur : "Such assurance might be entirely comforting, but for a growing misgiving to the effect that ailments of animals so trivial as to be disregarded, or even unnoticed by people about them, may have larger concern with occurrence of specific disease in the human subject than has heretofore been thought likely." But if a cow is suffering from any severe disease, does not the attendant notice it? Then again : does the contamination always come from within? In very many cases it does not. It has nothing to do with the cow at all ; although she and the veterinary surgeon get the blame for something which they have not the power to prevent. "*Diphtheria*" is also said to be conveyed from the cow to man. Medical men tell us something that we did not know ourselves, viz., that cows suffer from Diphtheria of the udder. I have never seen a case, although I have examined as many udders as most men. Diphtheria is not common in the cow. It seems to me that medical men assume that every attack of an aphthous nature is due to foot-and-mouth contamination. The other day a medical officer of health received from a medical man a report of a case of Endemic Aphtha, which he said had been caused by the milk from a dairy in Edinburgh county. Professor Williams, as the inspector, made an examination, and found no trace of Foot-and-mouth Disease. In the quotations in Professor McCall's paper, one man remarks that the veterinary surgeon hid the fact of the Foot-and-mouth Disease. I must point out that medical men are not always as good as they ought to be, and before such remarks appear in print, they ought to be well authenticated. I hold that in Foot-and-mouth Disease no harm can ensue from the milk if there are no udder lesions. If there are vesicles upon the mucous membrane of the udder and teats, you then have contaminated milk, but not otherwise. Where you have young animals dying suddenly from taking the milk of an animal affected with Foot-and-mouth Disease, you will find, on a *post-mortem* examination, intense hyperæmia of the fourth stomach. There are some remarkable cases which have come under the notice of medical men. Ask yourselves how many cases of ordinary Foot-and-mouth Disease occur which pass through all its stages, without producing any harm. Take the case at Market Drayton, where a man was supposed to have been inoculated by an animal. I do not believe that this animal had Foot-and-mouth Disease, but that it was suffering from Septicæmia, and that this man had received matter charged with septic materials. I hold that this is the case in the great majority of cases. I have only seen infective ulceration of the mouth once or twice in calves taking the milk from their mother. Another wonderful quotation is given at page 24 of the Paper as to turning manure over. Does any man among you believe that this will give rise to a disease of this kind? I think that if they had looked a little further they would have discovered that some putrefactive matter—some dead animal—was buried under that manure. I

say that the *real cause* of the outbreak has been entirely overlooked. As to the flesh, I believe that where it shows no evidence of mal-nutrition, or a depraved condition of the blood, it is not harmful. If the animal has suffered from Septicæmia for some days and the flesh is altered in its nutrition, then no man should pass it. If we were to condemn all the flesh and milk where Foot-and-mouth Disease exists, we should waste vast quantities of food. I go a little further than Professor McCall, who condemns the head, the tongue, feet, udder, and the heart, etc. I have examined the tongue, not only directly after death, but hours afterwards, and in all ordinary cases where the tongue is only slightly affected, it sets as well as any part of the carcase, and I have always held that it should be used where there is only a slight amount of disease. Even if you condemn the tongue, why condemn the head? If it is to some extent affected, surely the process of boiling will destroy any infection ; for this part requires a great deal of cooking. As to "*Bovine Tuberculosis*," the flesh should be condemned wherever it exists, and the same remark applies to "*Swine Fever*" and "*Anthrax*." I will add that in "*Pig-Typhoid*" or Anthrax you should examine every lymphatic gland for evidence of the disease, and cut right done to the bone also. In "*Pyæmia*" and "*Glanders*," the flesh should also be condemned. In *Foot-and-mouth Disease*, if the flesh is firm, has no bad odour, and no effusion, it is a shame to waste it. In conclusion, I would remark that if any good is to follow these discussions we should arrive at some practical conclusions. We should pass propositions and bring them before the notice of the proper authorities. We should let our opinions be known as to what we consider to be unwholesome flesh. I will ask you to consider the points which Professor McCall has brought to our notice in connection with the paper before us.

The PRESIDENT : I am sure that you have all listened, as I have, with very great pleasure to the remarks of Professor Walley. The subject is a very important one, and I ask each of you to kindly give it your earnest attention.

Professor WILLIAMS : I shall be very brief indeed, and speak more to stimulate discussion than with the idea of enunciating anything fresh. Professor Walley tells you that if you boil the tongue of an animal which has suffered from Foot-and-mouth Disease, you destroy the virus ; but that in Glanders or Tuberculosis no amount of boiling will render the flesh innocuous. I maintain that boiling would produce the same effect in one case, as in the other. My own opinion is, that the idea of eating any part of the body which is really affected is repugnant to human nature, and that it should not be offered as food. Then, again, he says that if the flesh be firm it is an indication that it is fit to be eaten. But when a hare is coursed, the flesh is eaten, although it is black. As to odour, you must bear in mind that some game is not considered in condition until it is "high." The people in some parts of Scotland eat with much relish the flesh of an animal which has died from a disease called "Braxy," although it is quite black. I think it is most important to impress upon the public the necessity for cooking meat thoroughly, and for boiling milk ; any existing organisms are thus destroyed. The same process might be carried out with water ; in which way we might, perhaps, prevent the spread of Cholera, should it visit our land.

Dr. FLEMING : The immense importance of this subject was shown by its having been brought before this Association at its last meeting, and from the fact that medical men are giving it their earnest consideration. Professor McCall has done as much justice to it as the length of the paper will allow. I have no desire to occupy the time of the meeting by entering upon the points which have been dealt with by Professor McCall. My views are already before the veterinary profession, as to the necessity for its entering

more fully into the discussion of the question. This is a question not so much for the medical profession as for our own. In those countries on the Continent which are the most advanced in State medicine, veterinary surgeons are regarded as specialists on these subjects. None of these countries have taken such a long time as our own to recognise the fact that the health and wealth of the people largely depend upon the healthy state of the milk and flesh which are consumed. This is a fact which should, I think, obtain more recognition from our Government. It is evident that the veterinary profession cannot force its views upon the country, until the Government and the public recognise the fact that the health of the community largely depends upon its food and milk; although we hope that repeated attacks upon the apathy of the public may arouse attention at last. With regard to the inspection of live animals destined for food, I may state that in all Continental cities this is carried out by the veterinary profession. In Berlin there are about 144 inspectors of meat in the abattoirs alone, and the inspection is extended to the tissues of the animals intended for food; and this is especially the case with pork. In this country we have nothing of the kind; although I have done my best for the establishment of public abattoirs, the condition of the London slaughter-houses is a disgrace to civilisation. I have had the painful task of examining a large number of them, and can state that anything more disgusting than their condition and management can scarcely be conceived. Granted that, in the case of a large number of diseases, thorough cooking will destroy any disease-germs which the flesh may contain; still, the knowledge of this fact avails little to persons who have a difficulty in finding means to purchase fuel. Even an accomplished *chef* cannot always cook an infected joint so that we may be certain the virus has been destroyed. It is not for the public to protect themselves by cooking; the Government must do that by thorough inspection. No flesh should be allowed in the butchers' stalls that cannot be safely used. As it is now, the knackers will tell you that very few cows are sent to their yards. A cow dies of Septicæmia: the carcase is seldom buried, but is, on the contrary, dressed and sent to some big town. This is not as it should be. We all agree that every slaughter-house should be open to inspection; but I go further, and say that every dairy in the country should be under the inspection of a skilled veterinary surgeon. There can be no doubt that milk is a great carrier of disease, a great absorbent of animal matter. The question under discussion becomes the more important from the fact that the malady, *Tuberculosis*, is becoming more prevalent. At the present moment we have no guarantee that the public are adequately protected.

Mr. EDGAR: This is a subject in which I take the deepest interest, and with regard to which I think that we are called upon to pass a vote at this meeting. We are advocating our claims as inspectors of meat and milk, but there is a powerful agency at work which is endeavouring to prevent us from attaining this position, and which is trying to show that the control of milk-shops should be vested in medical and sanitary authorities, and not with veterinary surgeons. I quote the following from a medical journal:—"The Petition of the Council of the National Association for the Promotion of Social Science, which has been presented to Parliament, to the Privy Council, and to the Local Government Board, contains some very urgent reasons why the control of dairies should be vested in the Local Sanitary Authorities, and not in the Veterinary Authorities, as heretofore. The petition shows that, with few exceptions, the latter possess no sanitary organisation or machinery whatever for the inspection of such places; that the Orders in Council framed under the Contagious Diseases (Animals) Act of 1878 have remained, to a large extent, a dead letter." The Act as carried out now is a disgrace to the sanitary authorities and the veterinary profession, as far as

we are connected with it. I hold the appointment of inspector to a considerable district in the south of England. We are under the supervision of the police. In the event of an outbreak I am called upon to certify that a disease of a contagious nature does or does not exist, and there my duties end. I wish specially to bring one case before your notice. I certified that one animal in a dairy was affected with Foot-and-mouth Disease. The inspector —an ex-policeman—made a report, for three weeks, that only one animal was affected. At the end of that time it died, and I was called upon to examine the rest of the herd, and found that they all had the lesions of Foot-and-mouth Disease. Only one animal had been isolated during these three weeks. The question arises, What was done with the milk of the remainder during that period? This is how the inspection of dairies is carried out. At present we have but little power to combat the disease. There are two conditions under which dairies should be inspected ; they are internal and external. I hold that we should claim to inspect dairies periodically, at not too distant intervals. Sanitary officers and policemen are not qualified to appreciate the importance of the conditions they meet with. In the north of England an outbreak of Typhoid Fever was traced to a dairy. It was a registered one, with open gulleys, and had a byre containing putrefactive matter within a few yards of it. All the animals in a dairy should be branded and registered, and a record kept of every one going from that dairy. Dr. Fleming will have a grand opportunity at the Health Exhibition of representing our claims as inspectors. I should like an explanation with regard to the outbreak alluded to by Professor McCall as having occurred on a farm in Ayrshire. From his statement there, we should suppose that the outbreak of Tuberculosis was due to the water supply.

Mr. PETER TAYLOR : I do not intend to say much, because I came here more for the purpose of listening and of acquiring knowledge. I am thankful to Professor McCall for his very valuable paper. He begins his paper well by telling us that there are three things necessary for health—viz., good food, good air, and good water. It is necessary for us to know what constitutes a healthy body. There has been much said about veterinary inspection. We have not hitherto made our influence felt. We must prove by our ability that we are capable of taking a more prominent position. We must never ignore the sister profession, to which we are very much indebted, and it behoves us to hold out the right-hand of fellowship to that profession. I may say that I consider that they are far above us at the present day. There is no doubt that to aid them in the inspection of meat the local authorities ought to have the assistance of really qualified veterinary surgeons. It is a disgrace that at the present time some discarded butcher or policeman is employed to carry out this duty. Veterinary surgeons should also see the animals before they are slaughtered. Experts have left us in a position in which we do not know what we are to rely upon for the analysis of milk, and what basis we are to act upon in deciding whether meat is in a healthy condition or not. If all we hear be true, it would appear that the human race should long ago have become extinct, and that there ought not to be a single animal on the face of the globe. I believe that previous to A.D. 1800 there were fewer epidemics than now. I hope that the young men of our profession will study the microscope, so as to be able to detect these bacilli.

Mr. C. W. ELAM : At a meeting like this, where so many of our ablest men are present, it seems to be a great pity that an uncertain sound should go forth. I was pleased to hear Professor Williams give it as his opinion that we ought not to ignore diseased portions of meat. There ought to be a definite line marked down. Mr. Edgar says that we are here to advocate our position as veterinary inspectors. We are also here to show that we are the proper persons for the public to employ ; to show that the knowledge we

possess specially fits us for this important duty. It is a very sad thing, I think, that at present the policeman is the man in authority. I am glad, for this reason, that I have not held an inspectorship. My idea of the average medical man is not very exalted, and in my opinion the average veterinary surgeon is quite his equal. Mr. Taylor says that epidemics are becoming more prevalent. From what I have read, I believe that they are decreasing. There is no doubt that if the medical and veterinary professions went hand in hand, good results would follow.

(To be continued.)

Army Veterinary Department.

Gazette, March 24th.

Veterinary Surgeon, First Class, D. J. Hinge to have the local rank of Inspecting Veterinary Surgeon whilst serving with the Suakin Expeditionary Force. 19th February, 1885.

Gazette, April 10th.

ROYAL HORSE GUARDS.—Veterinary Surgeon, First Class, M. J. Harpley, has been placed on retired pay, with the honorary rank of Inspecting Veterinary Surgeon. January 20th.

Gazette, April 14th.

ROYAL HORSE GUARDS.—Veterinary Surgeon, First Class, Isles Matthews, from the Veterinary Department, to be Veterinary Surgeon, vice M. J. Harpley, retired.

At the Queen's Levée held at Dublin Castle on the 9th of April, the following officers of the Army Veterinary Department were presented to H.R.H. the Prince of Wales :—W. A. Russell, by Lord Clarina; A. C. Webb, by Sir Thos. Steele, K.C.B.; D. C. Pallin, by Lieut.-Col. Harold Malet; R. Moore, by Sir Thos. Steele.

Owing to the heavy demands upon the Department, which have not been so severe since the Crimean War, it has been found necessary to increase the number by six more supernumeraries, who will now be twelve. In the battle which took place at Hasheen, Soudan, on March 22nd, no fewer than 846 camels were killed or missing, in addition to horses and mules. Veterinary Surgeon T. A. Mitchell was among the officers and men reported missing on that day, but fortunately he found his way into camp in the evening. The officers of the Department at Suakin are winning golden opinions for the great energy and skill with which they are performing their most arduous duties in a very trying climate. Alluding to the advance to Tambouk, on April 14th, Reuter's telegram reports :—"In view of the forward movement, all the horses and camels have been inspected by the veterinary officer within the last twenty-four hours, and have been found in a healthy condition. The Veterinary Department is much praised for its efficiency."

Notes and News.

PROTECTIVE INOCULATION FOR YELLOW FEVER.—The *Allgemeine Medicinische Central Zeitung* says that Dr. Domingo Freire, of Rio de Janeiro, the discoverer of the bacillus of Yellow Fever, has met with surprising success in his inoculation experiments. Of nearly 1,000 persons inoculated by him, not one single case was severely attacked, and the very few that suffered had the fever in the mildest form possible.

LOSSES FROM SWINE PLAGUE IN THE UNITED STATES.—A Virginia correspondent of the *Cincinnati Price Current* states that it is estimated that 200,000 or more hogs have died since last autumn in the States of Tennessee, North Carolina, Virginia, West Virginia, Maryland, and Pennsylvania from Cholera. Such a loss in these six States would mean about 3 per cent. of the number of hogs in those States.

JAPANESE PROGRESSIVENESS.—The Japanese are going ahead in every branch of study. One of them, who rejoices in the name of Haru Taka Youkura, recently took the medals offered as rewards for the best essay and for passing the best examination in Veterinary Surgery at the New York College; and now he is going home fully qualified to treat the diseases of horses and other animals in the Mikado's dominions. The paper which announces his success, describes Mr. Youkura's mission as calculated to prove to his countrymen "that a horse, like a man, may survive medical treatment."

ACTION FOR SLANDER.—At the Carlow Spring Assizes, Mr. Slocock, M.R.C.V.S., of Carlow, sued Mr. Widger, a horse-dealer of Waterford, for slander and assault, arising from the examination of a horse which the latter purchased. The jury entered a verdict for the plaintiff—damages £5, with costs.

LITERATURE.—In the volume of the "Encyclopædia Britannica" just published, the article on Rabies has been contributed by Dr. Fleming, Principal Veterinary Surgeon to the Army, who has also undertaken to write the article on Veterinary Science.

Correspondence.

CONTAGIOUS PUSTULAR STOMATITIS AND HORSE-POX.

SIR,—I observe that Professor Walley, in his interesting address on "Special Forms of Stomatitis," delivered before the Lincolnshire Veterinary Medical Society, on January 6th, and which appears in the VETERINARY JOURNAL for March, makes allusion to me, with reference to the contagious pustular disease of the mouth of horses sometimes met with, and which has been looked upon as Horse-pox by very high veterinary authorities on the Continent, chiefly in France—where Bouley was, I believe, the first to describe and class it as a form of Horse-pox. In Germany it has been seen; and it was studied by Ellenberger, then of the Berlin Veterinary School, who, I think, first gave it the designation which Professor Walley now determines it should have. I remember the Professor describing his cases to me while I was in Edinburgh, and from the symptoms mentioned, I believed the

disease was what Bouley designated Horse-pox, in one of its forms, and which I have also named it at different times, and was especially confirmed in doing so from my experience of it in an outbreak which occurred while I was in the Second Life Guards. An account of this outbreak appeared in the VETERINARY JOURNAL at the time it happened.

The Professor concludes that the malady is a purely local disorder, due to local causes, and has, therefore, no relationship to Horse-pox (Equine Variola); that there are no lesions outside the mouth, or extending from the mouth; that he is unable to imagine the possibility of a series of cases of any general, infective, eruptive disorder occurring in which the lesions are entirely localised in one particular site.

Referring to the last remark, it is notorious that certain eruptive fevers have special localities for their characteristic eruption, and that it is rare for this to be met with elsewhere. What better example of this could I afford than is to be found in Cow-pox, whether occurring naturally in the cow, or when inoculated? In the former, it is localised on the mammary gland; and in the latter is confined to the seat of inoculation. Professor Walley says he has seen typical cases of Horse-pox both in England and Scotland; but he, unfortunately, has not described them, and therefore I do not know what he considers typical of that malady. That the disease he brought to the notice of the society was not a purely local one, might be inferred from the pyrexia present (moderate degree of fever, temperature 103°); and though there was no depression, and work could have been performed, yet this is no indication of the absence of a general eruptive fever, as the same condition is remarked in Cow-pox.

Being the first in this country to detect and describe this contagious eruptive disorder of horses, and to designate it by the name already given to it by Bouley, I may state that my own experience of it seemed amply to justify me in bringing it before the profession in England under that designation. Notwithstanding the very large number of young and old horses that had come under my notice for a quarter of a century, no disorder corresponding to this had been seen by me until 1879, though in "Veterinary Sanitary Science and Police," published in 1875, I had devoted a section to Horse-pox, and did not fail to indicate this manifestation of it. I had no difficulty, therefore, in recognising it when meeting with it for the first time. The cases then occurring were under close observation by myself and an excellent Farrier-Major, and the opportunity for studying the disease was made the most of. Whether it was the same malady seen by the Professor, I can only guess; but I found the eruption on the buccal and Schneiderian membrane, on the lips and face, and in one case, in addition to these parts, on the croup. In a cryptorchid horse, on which I had operated some time previously, and the wounds of which had been cleaned with the sponge used for the affected mouths, there was an eruption of pustules on different parts of the body, accompanied by tumefaction of the limbs and rather severe pyrexia. At the same time an officer's charger in a sick-box adjoining, had an acutely-inflamed hind pastern (supposed to have been caused by the head-collar rope), with a somewhat profuse discharge for some days.

In addition to the cases among the horses, my Farrier-Major became infected by inoculation through a sore on one of his fingers, and had to be sent to hospital. The doctors who attended him asserted that the sore on the finger had exactly the same appearance, and pursued the same course, as the ordinary vaccine vesicle, but the general symptoms were more acute.

It will accordingly be seen that I was particularly fortunate, in my first experience of the disease, to have under immediate and direct observation clinical and pathological indications which left no doubt on my own mind as

to its being one of the forms of what has been justly regarded as Equine Variola—an affection which, as I have pointed out in the work just quoted, is not always limited to the extremities, but may in certain cases affect the mucous membrane of the upper air and digestive passages, as well as the skin on the trunk. The vesicles will, of course, submit to abortive treatment, as they will in other eruptions of a similar kind, as in Foot-and-Mouth disease; and their doing so is no proof that the malady is a purely local one. It is by no means so, if the case of the Farrier-Major were only considered. The disease I had to deal with was certainly not the ecthymatous contagious disease of horses with which we have been familiar for some years.

March. G. FLEMING.

A REVIEW REVIEWED.

SIR,—In the April number of your journal you do me the honour of reviewing my work on the anatomy of the horse. An accurate habit of statement is no less desirable in a reviewer than in an author, and I hope I shall not be deemed ungrateful for the generally favourable tone of your criticism if I venture to correct two inaccuracies that you have introduced into your remarks.

(1) In the slightly irrelevant reference to Chauveau and Arloing's excellent treatise on the anatomy of the domesticated animals, you say that the English translation of the work is regarded as a dissection manual in the English-speaking veterinary schools. Now, admirable as that work is as a systematic text-book, it is pre-eminently unsuitable as a dissection guide, and as a matter of fact, it has never been used in the dissecting-room by more than a quite insignificant proportion of veterinary students in this country.

(2) Referring to my work, you say—"There are many woodcuts, the greater number of which are borrowed from Chauveau and Leyh." Now, of the minor illustrations to which you refer, there are forty-eight, and of these the total number from Chauveau and Leyh combined is nine.

Royal (Dick's) Veterinary College. JOHN MCFADYEAN.

[Allusion to a work which has been of much service to our correspondent in the task he has so ably carried out, as well as to very many others in their studies, can scarcely be considered irrelevant. English-speaking veterinary schools are not confined to Edinburgh, nor yet to this country, and we have reason to believe that more than 2,000 copies of Chauveau's Anatomy, in English, have been sold here and in America. Evidently, an insignificant proportion of earnest students of anatomy is not a characteristic of all veterinary schools. In French-speaking countries where anatomy is properly and thoroughly studied, and where veterinary surgeons are most expert and accomplished operators, that work is the only guide for the dissecting-room. It is now in its third edition. With regard to the illustrations, woodcuts, or whatever else they may be designated, it may be remarked that thirteen are copies of drawings in Chauveau's Anatomy, and nine in Leyh's.

But we would consider all this too trivial to waste time upon by busy men. There was no intention to disparage Professor McFadyean's work, but entirely the contrary; and our statements with regard to it are, we believe, accurate, so far as our judgment and information lead us.—ED. V. J.]

A BEQUEST.

SIR,—The library of the Edinburgh Veterinary Medical Society has recently received a valuable addition by the gift through T. Greaves, Esq., F.R.C.V.S., Manchester, of the large collection of volumes which formed the library of the late Mr. John Greaves, M.R.C.V.S., Flixton.

Amongst these volumes are many old and valuable works, as well as most of the productions of the standard authors of the profession and the professional journals from 1827 to the present time. The members of the society desire publicly to express their thanks to the representatives of the late Mr. Greaves for their valuable presentation, and by inserting this notice in your esteemed journal you will be conferring a sincere favour on the society.

I am, sir, yours very truly,

Edinburgh, *April 10th.* JOHN A. ROBINSON, *Hon. Sec.*

THE FELLOWSHIP DEGREE AND ITS PRIVILEGES.

SIR,—I see in the Supplementary Charter of the Royal College of Veterinary Surgeons, passed in 1876, that clause 9 only admits of Fellows of the College being Members of Council. This clause is, I think, unjust and unfair, and ought not to be. It is what I call "making flesh of one and fowl of another." I think there are quite as good men, and as fit to be Members of Council, who are not Fellows, as those who are, and perhaps a little more so. I hope and trust that every veterinary surgeon in the United Kingdom will use his utmost endeavours to get the clause done away with. If a veterinary surgeon thinks well to go up for the examination to obtain a Fellowship, let him have the same examination as those who obtained their Fellowship at first, and not, as time goes on, make the examination harder and more difficult. If I have been informed rightly—and I think I have—those who obtained the Fellowship at first merely passed a very simple examination, or none at all—in fact, had it given to them. There are 100 Fellows; 1,900 who are not Fellows. Members of Council to be chosen out of the 100; the other 1,900 to be left in the cold—a nice state of things, I must admit, for a profession! Looks well in print. HENRY BLUNT.

Lutterworth, *April 11th.*

"PUBLIC AND CANINE GRIEVANCE."

SIR,—Would you kindly allow me space for a few remarks on the above article, which appeared in last week's issue of the *Live Stock Journal*, from the pen of J. W. Hill, F.R.C.V.S.? To a member of the profession it would seem inconceivable that a man in Mr. Hill's position—even as a Fellow and as an author—would expose brother professionals to the ridicule of the general public through the means he has adopted, and at the same time attempt to gain reputation by the down-treading of his fellow-practitioners. "It is a vile bird that fouls its own nest;" and at the present time veterinary surgeons have quite enough adversities to contend with for the defence of their professional capabilities, without the backbiting of some of their more unworthy members. Mr. Hill commences his letter thus: "I am glad to observe, concerning the above subject, the ball continues to roll, and trust its revolutions will, sooner or later, result in the end desired—viz., that canine pathology will occupy its proper position in the curriculum of the various veterinary schools: the Royal, at Camden Town, setting the example." He continues thus: "Not a few cases, since I last wrote, have been brought under my notice illustrative of the woeful ignorance of even the M.R.C.V.S. on canine maladies."

In regard to the first statement, I know not what time is devoted to the tuition of canine pathology in the London College; but Mr. Hill must not take that school as a criterion, as at the Royal (Dick's) College, Edinburgh, the ailments of the canine race are as minutely gone into as is necessary, and no

student who has studied under Professor Walley, if he has employed his time as he should have done, has, at the present moment, any cause to regret the extra time spent on that subject while studying comparative pathology. Probably Professor Hill aims at the chair of canine pathology in the London College; if so, he has gone about it in a wrong course. If he be desirous of a reformation in the curriculum of the various veterinary schools, let him bring his ideas straightforward at the proper time and place, and not stand behind the scenes and merely agitate outsiders by contributions to agricultural papers, at the expense of his professional brethren and his own etiquette. R.O.F.S.

THE PRACTICAL EDUCATION OF VETERINARY STUDENTS.

SIR,—Being, like Mr. Clancy, a comparatively recent graduate of the R.C.V.S., permit me a few words in reply to that gentleman's letter. I must altogether deny Mr. Clancy's right to assume that, because he is a recent graduate, he is therefore in a position to give an opinion on the practical education of veterinary students. My own experience teaches me that so far from recent graduates, who have seen the various phases of the veterinary profession under the watchful eye of some eminent practitioner, being capable of forming an opinion about the practical teaching of the student at college, these individuals, while students, are often the very men who, in a great measure, render that teaching inoperative. Content with the phases of the veterinary profession which they have seen, they are not to be had as dispensers or dressers; and their supercilious looks or open ridicule often enough prevent those who "must put their trust in the training to be received at college" from taking full advantage of that training, meagre as Mr. Clancy thinks it. Mr. Clancy's genius is not altogether destructive; he points out how he would amend the practical teaching in two ways—namely, by having lectures delivered on the horse's age as shown by his teeth, and by the daily writing of certificates of soundness by students. Truly this mountain, being in labour, has brought forth a ridiculous mouse. I have notes of lectures on the age of all the domesticated animals as shown by the teeth, and these lectures were delivered at the college where Mr. Clancy was trained, and during the time that he was there. But "after all," a visit to Scott and Croll's yard, and a "tip" to the groom, if not quite so academic, is a much more practical way of learning the age of the horse as shown by the teeth.

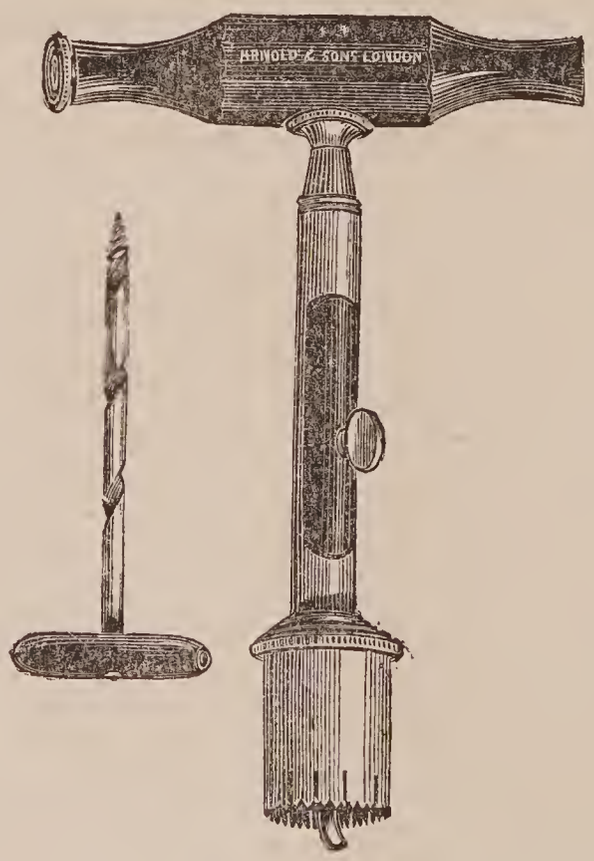
Whether it is practicable to have examinations as to soundness and certificates written by all the seniors, and to have those certificates corrected every day is, at least, questionable. Still, if Mr. Clancy made only one examination and wrote only one certificate, most of his fellow-students were certainly not confined to that number. "An automaton to diagnose and treat diseases" must be a peculiar entity; certainly it is quite as likely to be evolved beneath the watchful eye of some eminent practitioner, by the too slavish copying of his methods, as from the practical training afforded at college. To me it seems quite possible for a man, under the present system, to become a good enough practitioner, if he will but take advantage of the opportunities of seeing practice from the time he enters college; be always willing to lend a hand (dress a mangy dog, to wit), and not be afraid to ask questions; then, during the vacations, go to help some practitioner, eminent or other. Such a one may not, as Mr. Clancy says, go on his way rejoicing, but with a considerable amount of diffidence, and not too great an opinion of his own acumen, will painfully and anxiously watch his patients, more especially if he starts in practice at once. And this is the period when a man becomes thoroughly practical; if he has anything in him, the young practitioner will

learn more in the first two years of practice than a seven years' apprenticeship would afford. Those who would alter the present system of teaching in the colleges should remember that, except to the very smart student, a man has his time pretty fully occupied in getting up the theoretical during the final terms ; and it is certainly the impression among the students that a good theoretical man has a far better chance of getting through the final than a good practical student who is not so well up in theory. My own recollections of plucked candidates goes some way to confirm that opinion.

It may be a very wise thing for members of the profession who have a high estimate of their own capabilities to write letters, filling up your valuable pages, and devoted to showing the incompetence of the present veterinary surgeons ; but the wisdom of it is not patent. I hope the public are edified and inspired with confidence in their "Vets." I trust, also, that the Examiners feel flattered by the plentiful lack of sagacity with which they are credited ; as for the teachers they are being lectured to so let them suck as much wisdom out of the lectures as they afford. I am afraid the teaching on this subject, too, is, so far, anything but practical. "NEFAS."

AN IMPROVED TREPHINE.

SIR,—Messrs. Arnold and Sons, of West Smithfield, E.C., have requested me to send you a short description of an improved trephine they have made according to my directions, with the advantages it possesses over the old pattern, for insertion in the forthcoming number of your Journal.



I have had substituted for the usual trochar point, a curved steel centre-piece, slightly roughened at the curved portion. This may be made more or less prominent, as required, by means of a screw, which, when loosened, allows it to move freely.

The advantages gained by using this modified instrument are : That after the bone has been perforated by means of a gimlet supplied with the trephine, the centre-piece is inserted in it, and a fixed point is thus

obtained to work upon. There is no chance of the piece of bone separated by the circular saw falling into the sinus, as it is retained by the curve; and the time required for operating is much shortened. There is also, to my mind, an appreciable gain in having the handle secured to the trephine by a set-screw, with milled head, working from one end of it, as seen in the woodcut. This arrangement makes the instrument much pleasanter to hold.

Brighton, *March 16th.* JOHN MANNINGTON.

RUPTURE OF THE RECTUM.

SIR,—I see a report in the JOURNAL for March, of a case of rupture of the rectum. I had a similar case on the 18th September of last year. I was called to an aged mare that had been in pain more or less for the whole day. It was in the evening I saw her. I found the mare standing; the pulse was only just perceptible at the jaw, and rapidly running down; and the animal kept frequently straining. Before administering any medicine, I decided to make an examination *per rectum*. Directly inside was a mass of fæces, and on getting that out, I found, at the distance of about eighteen inches in, a large rupture of the rectum. It was sufficiently extensive for me to put my hand through and to feel the uterus and the small intestines—in fact, I got hold of the small intestines with my hand, and I could, if I had wished, have drawn them outside the anus. After making that discovery, I decided to do nothing, and the mare was dead by the following morning. Upon making inquiries, I found that the mare had for some time had a difficulty in expelling her fæces, and the owner had often taken it away with his hand. I infer from this, that the rectum, at the part where the rupture took place, had been getting thin and losing its power for some time, and ultimately gave way. I may say that I did not make a *post-mortem* examination, as I thought my *ante-mortem* examination was sufficient. I think this case is interesting to the profession, as in Mr. Spreull's case the rupture was "almost within reach of the hand," whereas mine was quite so. R. W. KNOWLES, JUN.

South Brink, Wisbech.

VETERINARY JURISPRUDENCE.

SIR,—Without sympathising in your correspondent's brusque censure, appearing in the JOURNAL for March, I cannot but think that the clause of the Act referred to, viz., 17, certainly does imply that any one *not* on the *Register of Veterinary Surgeons* (although he be on the *Register of Existing Practitioners*) is not entitled to call himself a Veterinary Surgeon. It is clear that there are *separate* registers, and the omission of mention of the Register of *Existing Practitioners* following that of "Veterinary Surgeons," in clause 17, prohibits *Existing Practitioners* from calling themselves V.S., and subjects them to the fine if they do so. If this be not so, I must apologise for obtuseness; but at the same time feel, with many others, that the great advantage of *public* distinction—one of the purposes for which the Act was obtained—would be lost were *Existing Practitioners* able to style themselves *Veterinary Surgeons.* HENRY DYER.

Leatherhead.

[If clause 17 were to be enforced against Existing Practitioners in the way indicated, they could not exist under any designation, and their registration was needless. But the clause was intended to protect them, as well as the public and the profession, by prohibiting unregistered persons from designating themselves Veterinary Surgeons, etc. The Act, in clause 16, safeguards the titles of members of the profession from Existing Practitioners and others. —ED. V. J.]

SPAYING: IS IT JUSTIFIABLE OR CRUEL?

SIR,—The practice of spaying pigs, as well as bitches, has fallen into desuetude over a great part of England; but in the district in which I reside there are some very ardent believers in it, who give as their principal reasons for its continuance:—

(1) Pigs so operated upon fatten quicker, because they do not waste time in "hogging."

(2) That they are less troublesome.

(3) That pork will not take salt if the sow happened to be at œstrum when slaughtered.

The practice as usually performed cannot fail to inflict a very large amount of pain, since anæsthetics are out of the question in respect to the pig; though I, for one, have operated on a great many bitches under chloroform, and am of opinion that there are cases in which such an operation is excusable, as in those bitches who are ever at œstrum and never fit for conception, and commonly called "whores" among the gentlemen of the fancy.

My object in bringing the subject to your notice is to ascertain if in the opinion of the profession spaying is necessary, and if so, justifiable; or being unnecessary, therefore cruel, and to be discountenanced?

East Grinstead, Sussex. HAROLD LEENEY, M.R.C.V.S.

TO CORRESPONDENTS.

A NUMBER of communications and reports of societies are unavoidably held over until next month. We would again request secretaries of societies to condense their reports as much as possible, in order to ensure early publication, as the pressure on our space is increasingly heavy.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from H. Dyer, Leatherhead; J. B. Wolstenholme, Manchester; E. Kitchin, Liverpool; G. Gartside Mayor, Kirkham; C. Gresty, Newcastle-on-Tyne; H. Kidd, Hungerford; J. McQueen, Glasgow; "Nefas"; Messrs. Gresswell, Louth; J. B. W. Skoulding, A.V.D., Woolwich; H. Leeney, East Grinstead; E. A. Hollingham, Redhill; H. Blunt, Lutterworth; J. McFadyean, Edinburgh; D. C. Pallin, Dublin; W. A. Edgar, Dartford; "R.O.F.S."; J. H. Robinson, Edinburgh; Professor Walley, Edinburgh; R. H. Dyer, Limerick; Professor Smith, Ontario; W. Penhale, Devon.

BOOKS AND PAMPHLETS: *J. Woodroffe Hill*, The Diseases of Poultry; *G. S. Heately*, Practical Veterinary Remedies; *T. Christy*, New Commercial Plants and Drugs; First Annual Report of the Bureau of Animal Industry; *W. Gilchrist*, Memoir on the Treatment of the Diseases of the Camel; *J. Mills*, Indian Stock-Owner's Manual.

JOURNALS, ETC.: *Annals of Surgery; Lahore Veterinary Journal; Revista Argentina de Ciencias Medicas; Deutsche Zeitschrift für Thiermedicin und Vergleichende Pathologie; Repertorium der Thierheilkunde; Clinica Veterinaria; Quarterly Journal of Veterinary Science in India; Recueil de Médecine Vétérinaire; Der Thierarzt; Wochenschrift für Thierheilkunde und Viehzucht; Annales de Médecine Vétérinaire; Lancet; British Medical Journal; National Live Stock Journal; Medical Press and Circular; Journal de Médecine Vétérinaire; Archives Vétérinaire; Revue Vétérinaire; Live Stock Journal; Edinburgh Medical Journal; Journal of Comparative Medicine and Surgery; L'Echo Vétérinaire; La Presse Vétérinaire; Animal World; Der Hufschmied; Mark Lane Express; Œsterreichische Vierteljahresschrift für Wissenschaftliche Veterinärkunde; Animalia; Stock-keeper.*

NEWSPAPERS: *Kent Messenger; Carlow Sentinel; Minneapolis Tribune; York Herald; Leeds Mercury.*

THE VETERINARY JOURNAL

AND

Annals of Comparative Pathology.

JUNE, 1885.

MAMMITIS BOVIS—MASTITIS GARGET.*

BY WM. ALSTON EDGAR, F.R.C.V.S., DARTFORD.

WHEN requested, in September last, to read a paper at the March meeting of our Association, I was not aware that it would be held in London, or that we should have the honour of being associated for the time being with the Central Society, or I might have chosen for discussion a disease of greater interest to town practitioners.

I, however, make no apology for bringing the subject under consideration, as it is one of special interest and importance to the large and ever-increasing number of our clients who devote their time and capital to the great milk supply of our country. It must be within the knowledge of all present that dairy-farming is now receiving much anxious attention from a large number of agriculturists, who have, owing to combined causes, much reason to desire a more lucrative field of labour than ordinary agriculture.

With the progress of science, the stock-owner has a right to expect, on the part of his veterinary adviser, an increased attention to those diseases which, from their frequent occurrence, are a source of continual loss.

Very much time has been occupied, and profitably so, by members of our profession in discussion, and writing upon what

* Read before Southern Counties and Central Veterinary Medical Associations, 26th March, 1885.

are termed the "great bovine scourges"; but, in doing this, neglect many important every-day diseases, which are, as I shall attempt to show in the case of Mammitis, causing great annual losses, although these losses accrue in such a way as to be frequently overlooked.

From the literature of a subject one may fairly form a criterion as to its estimated importance, and get an accurate idea as to the general knowledge possessed concerning it.

Following this line of argument, and perusing veterinary literature published in this country during the past fifteen years, it must, I fear, be conceded that few only have been interested in the pathological condition under our consideration. Indeed, in 1878, it was stated in this city by a well-known medical gentleman that "Garget is not much known to veterinary surgeons"; this statement was, however, at the time disproved by Professor Axe and others. So far as I am aware, Mammitis has received little attention from our medical societies, excepting in a secondary way—in its relation to Diphtheritis, by a paper read by Professor Axe before the Central Veterinary Medical Association in February, 1879. I trust, however, our discussion to-day will bear evidence that, although our literature is somewhat meagre upon the subject, a large amount of skill, based upon physiological principles, is daily combating this localised, yet severe, and often intractable, malady. I am fully sensible that a very large number of cases of Mammitis never receive veterinary attention at all, it being with many dairymen a preconceived conclusion that the attacked quarter of gland is, of necessity, lost—at any rate, during present period of lactation; and, consequently, a severe milk loss is quietly borne, and no skilled treatment is brought to bear upon it. Doubtless, this opinion has been arrived at from a series of failures in treatment, and such a result is only to be expected if the advertised remedies for the malady are extensively used.

The value of the milk loss following an unsuccessful case of Mammitis is very considerable. It may be computed, in first-class milkers, at from £4 to £10 per annum for every quarter of gland lost. Allowing a cow 344 milking days in twelve months (or more, as in cases where the animal is not "dried off" at all),

and estimating for the loss of one quarter of gland an *average diminished* secretion of *one quart per day*, would equal a milk loss of 344 quarts, which, at 3d. per quart, would be £4 6s.; when, as frequently happens, two or more quarters are lost, and sometimes the whole gland, the loss is increased beyond this proportion. In making this estimated loss, consideration is taken of the subsequent hypertrophy of division of gland remaining sound; but this by no means compensates for the lost quarter, or quarters, and greatly suppressed secretion during the acute period of attack. As the result of an outbreak of Infectious Mammitis in a dairy of 180 cows, Professor Dieckerhoff, of Berlin, estimated the diminished secretion, in loss of one quarter only, at from three to five pints per day.

It may thus be seen that this local disease in dairy stock, being of such frequent and general occurrence, is a source of great annual loss, quite apart from its occasionally fatal termination.

Before proceeding with the pathology of Mammitis, allow me briefly to call your attention to the anatomy of the mammæ.

The mammary is a conglomerate gland, divided into four primary divisions, or quarters. Each lateral mammary mass is enclosed in a fibro-elastic capsule, which is reflected through the centre of the mass, thus dividing the gland into four. Each division is made up of lobulæ, which are formed by union of alveolæ, or acini; from the latter the lactiferous ducts proceed, the united branches of which form a single galactopherous sinus at the base of the mammilla, or teat, having a single orifice. The alveolæ are attached by connective tissue, in which the nerves and blood-vessels ramify. The nerves are derived from the first lumbar pair, arteries from the external pudic. The nerves, blood-vessels, and lymph spaces follow the lactiferous ducts in their course, the capillaries forming a spiral plexus around the alveolæ. Upon the external surface of the membrana propria, or basement membrane of alveolæ, the secreting epithelium is situated, its type here being cubical or stratiform polygonal cells; in the lactiferous ducts it is cylindrical, in a single layer. The whole gland has a subcutaneous yellow fibro-elastic covering, connected by fibrous suspensory bands to, and continuous with, the abdominal tunic.

The inflammatory changes in the gland vary in different forms of the malady; in Catarrhal Mammitis, the basement membrane and epithelial lining are chiefly involved, while in the phlegmonous form the parenchyma is attacked.

We have, for our consideration, Specific or Contagious Mammitis, Septic Mammitis, Special Mammitis due to Eczema Epizoötica, Variola Vaccina, or Tuberculosis; and the several traumatic forms, as Erysipelatous or Phlegmonous, Interstitial, and Catarrhal Mammitis. As my object in bringing this subject forward is to point out Mammitis as a daily loss to stock-owners, I propose to engage your further attention principally upon the forms most commonly met with—viz., those of traumatic origin, touching only briefly and generally upon the special and less frequent kinds.

The extrinsic causes of simple Mammitis may be referred to mechanical injury, kicks or blows, bruising upon edge of gully when stalls are too short (a frequent cause); concussion from dropping down heavily upon hard, rough, or imperfectly constructed flooring, covered by insufficient bedding; cold, badly-drained pavement; exposure to excessive bottom draught from doors or windows; lying in wet pastures during sudden changes of temperature; retention of milk in the udder in cases of so-called "over-stocking" or from improper emulsion; abrasions and cuts on mammillæ, or abrasions from simple Eczema or papilloma on latter; injuries to lining membrane of teats from straws or lacteal calculi. Intrinsic causes are chiefly dietetic—injudicious feeding, or sudden and entire changes of food—in fact, anything producing gastric, enteric, or hepatic disturbance; it may, however, be caused by systemic chills, cold, and localisation of pyrexia. The so-called cases of Mammitis common in primiparæ, are invariably nothing more than acute hyperæmia, with subcutaneous effusion.

The cause of Infectious Mammitis, which is but little known in this country, is referred by Professor Zurn, of Leipzig, and Dieckerhoff, of Berlin, to the presence of micrococci and bacteria. Professor Axe appears to have observed this malady in London in 1878, briefly described in his paper before-mentioned, although the symptoms noted in this outbreak differ in an important particular from those observed by Dieckerhoff.

Special Mammitis, produced by Variola Vaccina or Eczema Epizoötica, is due to a localisation of the general disease in the lining membrane of the galactopherous sinuses and lactiferous ducts, and such cases occasionally terminate in Septic Mammitis, the latter being generally fatal, as the whole gland is involved. In these cases the secondary udder lesions follow the character of the erysipelatous type, and constitute by far the most severe forms of the malady.

Infectious Mammitis, according to Dieckerhoff and Franck, of Munich, may affect animals not in lactation, and be extended to ewes and sows.

S. R. Smith, late of Grantham, writes indefinitely of Mammitis affecting heifers* and "dry" cows, but does not regard it as infectious.

The diagnosis of Mammitis is not difficult, owing to the well-marked local lesions; these, are, however, preceded or accompanied by systemic changes.

A well-marked febrile period is invariably to be noted, the degree of pyrexia being in direct proportion to the acuteness of attack and extent of gland tissue involved; it is always less severe in the catarrhal form.

Well-marked rigors are accompanied by a rise of temperature, of from two to five degrees. The pulse rate also varies with the severity of the local condition, being generally from seventy to ninety per minute, respirations quickened up to eighty per minute, almost simulating an attack of Pulmonary Hyperæmia. Anorexia and inrumination existing during the severe pyrexial stage invariably give place, when the temperature falls, to a fair appetite and free rumination; locomotion is, if possible, avoided, but if the animal be forced to walk, considerable abduction of the hind extremities takes place, in order to remove lateral pressure upon the mammary gland. The milk supply is greatly diminished. The systemic disturbance is generally greatest when the lacteal secretion is at its height, and the phlegmonous form of the malady is present.

Many, or all, of the foregoing conditions have frequently passed before the veterinary surgeon is consulted; the symptoms being

* Query: What does he mean by "heifer"?

then confined to the changes in the lacteal secretion and gland.

The affected divisions of the udder (in a large percentage of cases the posterior) are hot, red, swollen, and hard, the effusion gravitating towards the base of the mammillæ ; great pain is evidenced on pressure upon the tumefied part, and the act of mulsion is resisted. The secretion is much altered in character ; the fluid is of a dirty yellowish-grey colour, sometimes tinged with blood, or of a citron hue, containing flocculi of casein of a whitish colour, much resembling pus, owing to the large number of fat globules. A microscopical examination of the fluid will indicate an imperfectly-formed secretion, there being, with the greatly reduced quantity of fat globules, a very large proportion of colostrum corpuscles, many showing fractured margins. If there is no septic change in the gland, the fluid possesses a faint, not unpleasant, odour, and sweet taste ; its reaction is almost always neutral, or very faintly alkaline. Professor Dieckerhoff has noted, in the Infectious Mammitis, an acid reaction ; I have found this condition of milk only in cases of suppressed lochia, with absorption from the mucous membrane of the uterus. If, during the attack, frequent mulsion is not had recourse to, the secretion, when withdrawn, is in a semi-solid condition, owing to absorption of the watery part and coagulation.

In acute phlegmonous cases, the gland and teats are so tense that the removal of the secretion is most difficult, and this especially if the mammillæ are short and the posterior quarters involved. Under such conditions abscess is sometimes the result, the pus being generally deeply seated, and covered by an enormously thickened parenchyma and subcutaneous effusion ; absorption of the gland tissue and evacuation is a slow process, if unassisted by the knife.

In the catarrhal form the exactly opposite condition obtains, the gland being generally flaccid and contracted ; there may not be a single lobule in the whole quarter indurated. This form of disease is much less painful, and of a more chronic character.

Mammitis must be distinguished from Mammary Œdema, sometimes accompanying an acute case of benign Eczema. Here there is no alteration of milk, but simply a diminished secretion,

owing to the enormous pressure upon the lobulæ of the gland by the subcutaneous effusion, which may extend from the labiæ to the floor of udder; there is no pain or palpitation in this condition. In a case under my care, a few days ago, the mammary gland, teats, legs, thighs, quarters, and back were thickly covered by serous effusion, yet the gland structure and milk were normal for four days.

In some cases, purulent infiltration follows the pus formation; such cases, in my experience, generally prove fatal. I have not tried the heroic treatment of mammary amputation, employed successfully by Mr. H. Burnes at Malpas in 1873.

In Mammitis accompanying Variola Vaccina or Contagious Eczema, it generally extends from the teats to the gland structure, and this extension is noted by Professor Dieckerhoff as an essential condition in Infectious Mammitis—thus differing materially from Professor Axe's cases of the same malady, where he specially remarks its commencement in the gland structure.

I have thus briefly drawn your attention to an outline of Mammitis Bovis, in order that I may enter rather more fully into the matter which concerns us more intimately—viz., the treatment of cases brought under our notice.

In this I must apologise at the outset for anything that is not altogether new, and, further, for attempting to upset some errors in treatment advocated in some of our text-books. Strict attention to matters of simple detail is in this, as in many other diseases, of much greater importance than is generally admitted. I am not here to-day to discuss the treatment of this disease, without a strong conviction that we have yet much to learn in dealing remedially with the most simple pathological conditions which are daily under our notice.

My attention has been devoted for some considerable time to this disease. I was struck, during the years of my pupilage, with the very large percentage of failures in treatment of Garget, and, when I look back upon the measures employed, am only surprised that any cases recovered at all. While at that time recovery was the exception, under a system of treatment I will attempt to explain recovery will be the rule.

When treatment is employed at the onset of disease, the same general principles may be brought to bear regardless of the exact local lesions. The probable cause of attack must be at first considered, and the patient of course removed, as far as possible, the one from the other. A dry, roomy, and well-bedded stall, free from draughts, kept at a uniform temperature, is the most favourable stable for recovery. A stall is advocated, that the patient may be kept from lying in moisture or excreta, which it will generally do in spite of a careful attendant. The surface of the body to be evenly and warmly clothed, the extremities bandaged—an advantage frequently overlooked in the care of bovine animals. If the case is at all severe, hot swabs, or, what is far better, spongio-piline, or poulticine, should be applied to the loins, extending from the dorsal to the sacral region, under, and carefully fixed by, the outer clothing, changing only as often as necessary to keep the skin hot and moist.

I will now follow the local treatment, as applicable to most ordinary cases of any but the catarrhal type. Careful mulsion must be repeated *every two hours*, drawing the milk first from the sound quarters of the gland, in order that the inflamed portion may be more carefully and evenly pressed upon. After as much milk as possible has been removed by the ordinary pressure upon the teats, the whole gland must be pressed from above downwards, in order to squeeze any secreted or effused fluid from the acini into the lactiferous ducts, thence into the galactopherous sinuses. This can best be done by passing one hand firmly up into the lateral division of the udder, the other to cover the outer surface, pressing them downwards firmly and slowly until every particle of fluid is removed; *this process is most essential to success*, as it reduces to a minimum the probability of any acini becoming blocked with caseous clots.

I would now draw attention to a common and injurious practice often resorted to, to effect the removal of fluid from the gland—viz., the use of milking syphons. I venture to state that in no case do they conduce to a favourable issue; indurated glands are generally the result of their use. When a syphon is passed into the galactopherous sinus, the watery, or serous portion of the secretion passes freely enough through the orifice of the in-

strument, but not so with the clots of caseine and fat; these accumulate in the lactiferous ducts, and ultimately block them entirely; the result is invariably an indurated tumefaction of the lobulæ or whole quarter, and its loss, until the product has undergone fatty degeneration and absorption, which means no milk until next period of lactation, and then only an attenuated gland.

When the secretion is withdrawn, as in ordinary mulsion, the fluid assists to "flush out," if I may use the expression, the caseous flocculi, and thus the acini are kept free. If the secretion is thus withdrawn every two hours, no coaguli remain in the gland. I admit the use of the syphon as a preventive of Mammitis, when, as in the early stages of Variola Vaccinia, or contagious or acute simple Eczema, the mammillæ are intensely sore and inflamed; the milk will then flow freely, without subjecting the patient to pain of mulsion. Great care should, however, be taken that the instrument is free from any morbific matter, or it will be a ready means of conducting such into the gland, the probable result being Septic Mammitis.

After the gland has been relieved of the normal milk, thorough fomentation should be carried out for about twenty minutes, before further manipulation is had recourse to, as it greatly relieves the pain and tensity of the udder, which is an important consideration in this most painful disease. After the gland has been carefully dried with a soft cloth, an embrocation, consisting of glycerine in four parts, belladonna extract two parts, should be steadily rubbed, principally into the diseased quarters, but lightly over the whole gland. The glycerine effectually prevents the risk of chill after fomentation; it further softens and comforts the inflamed skin; beyond all this it is a thorough solvent for belladonna, and the combination is thus an advantage over every other medium in applying belladonna. This embrocation is very readily absorbed, and thus the full local physiological action of the drug is obtained, and the result is contraction or occlusion of the alveolar capillaries, and thus a cutting off, or at least a great diminution, of blood flow to the inflamed area. At this stage of the malady, all local stimulating embrocations, especially ammonia or terebinthæ, should be strictly avoided, as should also poulticing or any attempt to

suspend the gland, as advocated by Simonds, Armitage, Steel, and others. Such procedure is simply to court an unfavourable issue. A poultice, to be of any service, must be sustained in perfect contact with the gland. This can only be done by a fair amount of pressure, which must, of necessity, be brought to bear upon the inferior part of udder; the result of this is to squeeze the milk up from the galactopherous sinuses into the lactiferous ducts and acini—the very opposite condition of things it is most desirable and important to obtain. The same objection applies to a suspender over the loins, the use of which I have entirely abandoned. The whole line of treatment I am advocating is to combat the circulation in the inflamed area, sufficiently long to arrest inflammatory action, give rest to the part, and promote absorption. Diminution of blood supply to the udder is further obtained by applying, as before mentioned, hot swabs, poulticine, or spongio-piline to the loins.

In Catarrhal Mammitis, where there is no œdema, heat or pain in the gland, fomentation need not be carried out, but the application of belladonna and glycerine is useful; a case recently under my care, where three quarters had produced nothing but serum for three weeks, recovered under this local treatment, together with internal treatment, to be immediately discussed. Before passing from local remedies, I may mention the intra-mammary injection of atropia, which I have been led to employ from the remarkable results obtained by belladonna, and, if my infantine experience of this remedy is supported by a further series of successes, I shall freely abandon the use of other local agents.

I may suggest to any who will give this treatment a trial, my procedure, which is very simple. After carefully emptying the gland and diseased quarters, as before advised, atropiæ gr. $\frac{1}{5}$ is added to warm milk ʒij, and injected with the syphon syringe (shown) into the galactopherous sinus of the affected quarters. I have met with no success with any other form of intra-mammary injection.

I have little confidence in the treatment of chronic indurated quarters by local stimulants and absorbents, frequently advocated, as a gland in this condition is rarely restored before the next parturition.

Passing on to internal treatment, we must be guided much in this by the form of the malady.

In the early stages of attack, in acute forms, the administration of a mild cathartic is useful, followed through the pyrexial period by febrifuge draughts. The object to be aimed at is the diminution of lactation for a brief period, to attack the cause of systemic disturbance.

I find internally, as externally, no medicinal agent is so effectual in this as belladonna, which has a remarkable power in suppressing the mammary circulation, and thus checking lactation; great care must, however, be taken not to push this drug too far, or the milk will be entirely and permanently suspended. I find solution of belladonnæ extract. in dram doses, once or twice a day, combined with sodæ bicarb. in two-ounce doses, to be all the medicine required until the inflammatory stage is past The soda is most useful in correcting the dyspeptic condition, so frequently accompanying Mammitis; careful dieting is during this period most important, all stimulating or milk-forcing food, such as cake, bean meal, roots, or grains, must be avoided, also large quantities of water or gruels.

Sweet hay, in moderate quantities, with a little bran, is the best food until the inflammatory condition is over; then, with the administration of tonic medicines, such as quinine, carbonate of iron, or liq. arsenicalis, good food may be freely given, to bring up the milk supply and strengthen the weakened gland.

Catarrhal Mammitis is best treated throughout by tonic agents, care being taken to correct any gastric or enteric disturbance.

The case of three weeks' standing, previously mentioned, was treated internally with iron and gentian pulv., in two-dram doses, night and morning, with a liberal supply of cake food.

I presume there are few, if any, present who still advocate the lancet and repeated purgatives in the treatment of local inflammatory conditions; in Mammitis they are strictly to be avoided.

To any who have an extensive experience in the treatment of the malady, may I suggest a fair trial of subcutaneous injections of sulphate of quinine, in conjunction with the internal administration

of belladonna, during the inflammatory stages, especially of the phlegmonous form. This combination has produced great results in Mammitis in human subjects, and is certainly physiologically indicated in bovine cases. Having given it so short a trial, I am unable to speak with any confidence of its probable utility.

In conclusion, I have to thank you for an opportunity of introducing this important subject to our associations, and trust the outcome of our discussion will be commensurate with the valuable time expended.

A CASE OF TUBAL FŒTATION IN A BITCH.

BY J. H. CARTER, M.R.C.V.S., BURNLEY.

THE following remarkable case came under my notice on the twenty-sixth of February last, when I was hastily summoned in the early morning to make a *post-mortem* examination on a mastiff bitch, which had died in a very sudden and unexpected manner during the night, she being apparently in excellent health only a few hours previous to being found quite dead. Owing to death taking place in such a sudden and mysterious manner as related, my first impressions were those of poisoning; but before expressing an opinion to that effect, I made inquiries as to her previous history, and was informed as follows:—The bitch was purchased on the first of July last, and three weeks previous to this date was delivered of three dead pups.

She was again put to the dog on the thirteenth of December, and was again due to pup on the fourteenth of February this year.

She, however, showed no signs of pregnancy, and it was not until the twenty-sixth of February that death took place (just twelve days after she was due to pup). Upon turning the bitch over to examine the external parts of her anatomy, I perceived a most offensive smell, which, upon closer examination, I found emanated from a fluid of a greenish-yellow colour issuing from the vagina. Upon inquiry, I was informed that she had discharged a fluid similar in character *(per vaginam)* for a period of six months or more.

The *post-mortem* appearances were as follows :—

The Lungs (right and left) were very pale, anæmic, and extremely emphysematous, there being dilatation and rupture of the air-cells throughout their entire structure.

The Pericardial Sac contained an abnormal quantity of straw-coloured fluid. The heart itself presented no abnormal feature beyond the right cardiac ventricle being somewhat distended with blood of a dark, tarry consistency.

The Liver was darker and more friable than normal, whilst the gall-bladder was empty.

The Stomach was inflated with gas, and contained foreign substances, such as straw, pieces of wood, etc.

The Intestinal Canal presented inflammatory patches or ecchymoses throughout its whole course, the mucous membrane peeling off readily to the touch, and was in some parts entirely void.

The Bladder was distended with urine, and appeared healthy.

The uterus and left Fallopian tube were the seats of extensive morbid changes.

The Uterus.—This organ was very much distended, and upon laying it open there was revealed a great quantity of purulent matter, which made its escape; the mucous membrane was flabby, pale, and thickened, and had numerous short hairs (of a fawn colour) firmly embedded in its substance. The left Fallopian tube was very much elongated and distended in its centre, resembling somewhat in shape "a diminutive horse's stomach."

Upon opening this distended portion, another quantity of purulent fluid made its escape, along with several bones, all completely ossified, and partially covered with hair (of a fawn colour).

There were six bones in all, four of them being cranial, one humerus, and one sacral.

The mucous membrane lining the tube was very much thickened, corrugated, and deeply grooved, these grooves running parallel to the long axis of the tube. The muscular coats of both vagina and left Fallopian tube were very much hypertrophied. This hypertrophy of muscular tissue may be accounted for in two ways, viz., it may possibly have been produced by irritation and inflammation set up by laceration of the soft parts during the transit of the missing bones. Or

otherwise we may account for it as being an effort of nature to so strengthen these parts as to enable them to expel that which was foreign, and no doubt a source of irritation and trouble to the poor brute. The missing portions of the fœtus must have either become absorbed, or otherwise passed away during the period of the discharge (*per vaginam*) before mentioned. I think this latter hypothesis most probable.

From the condition of the bones found, the fœtus must have reached a high state of development.

In my opinion the fœtus must have been imprisoned in the tube where its few remains were found, for a period of nine months or more, in fact, ever since she was delivered of the three dead pups in June of last year, otherwise how are we to account for this constant purulent discharge which had been noticed for over six months previous to her death?

And then again, this fluid corresponded in character with that found in both uterus and left Fallopian tube.

I think there can be no doubt as to this being a true case of tubal fœtation, and that fecundation took place in that part of the tube where the bones were found.

The question now arises, Which of all these morbid phenomena was the direct cause of death? I shall be pleased to learn the opinion of some of my more learned brother colleagues. In conclusion, I may say that I have never heard of a similar case occurring in the canine species, nor can I find mention of one.

ON BOVINE TEMPERATURES, ETC.

BY HAROLD LEENEY, M.R.C.V.S., EAST GRINSTEAD.

WITH so many contributors giving their averages of normal temperature, it is unnecessary to add mine, as it would only confirm the generally accepted standard, which I have tried on the celebrated shorthorns of the late Sir Curtis Lampson, and other widely differing breeds, to see if breed has much to do with it. What, however, I wish to call attention to is the frequent erroneous diagnoses made through too much importance being given to thermometry.

A short time since, I was consulted about a herd of Sussex bullocks, mostly under two years, and in covered yards; the chaff was adhering to their muzzles, they were dull and constipated, with temperature of 102° to 103·5°. One was as high as 104°, and had been separated for my inspection. Inquiries elicited that much rape-cake was being given, and the taste and smell indicated mustard, which afterwards proved to be present. Advising the discontinuance of rape, the substitution of linseed, and a saline aperient for each beast, I waited the progress of events, when, on going to the farm one day, I met an eminent London F.R.C.V.S., erstwhile an examiner, who had been to see these animals without reference to me, and was on his way back. With some degree of confusion we returned, and placing myself under his authority, I was commanded to keep my thermometer for four minutes in the rectum, and when removed and a temperature of 104° indicated, I was gravely informed that an outbreak of Pleuro-pneumonia might be looked for, segregation of the steer, etc., etc, advised, and an ounce and a half of sodæ sulph. and pot. bicarb. prescribed.

Meeting my client after F.R.C.V.S. had gone, I told him, in answer to his inquiries, that the bullock would die for want of an aperient, and that I should loyally carry out the commands of the Fellow, and wait for the *post-mortem* examination to prove the nature of the case. The bullock died, with perfectly healthy lungs and impaction of omasum, and it was so plain to the owner and stockman that their fears for the herd were dissipated at once, as well as Mr. P.'s confidence in the Fellow. An aperient was administered all round, the cake changed, and the beasts were all doing well in three or four days.

The above shows the fallacy of hasty conclusions and one-sided examinations. This gentleman could have obtained all the necessary information from a more than usually intelligent bailiff, which would have prevented such a ridiculous mistake, but depending on his thermometer and his reputation among horses, he has permanently disgraced himself in the eyes of my client. Is it to be wondered at that farriers live and thrive in close competition with veterinary surgeons? The great majority, I am sure, would have treated such a case successfully, and though they may

know nothing of the chemical composition of cakes, they are practically acquainted with their uses and effects.

Before concluding my remarks on temperature I should like to know if any of my brother practitioners (Fellows or mere members) have met with very high temperatures in Mammitis, as I have recently had two cases in cows indicating a temperature of 109°, and both animals recovered without losing a quarter I had my thermometer tested at the time, as this seemed a very unusual temperature, and I may add fell three degrees in six hours in both cases.

PRESCRIPTIONS FOR GENERAL TUBERCULOSIS AND *TABES MESENTERICA* IN CATTLE.

BY J. BRODIE GRESSWELL, M.R.C.V.S., LOUTH.

HAVING found the following formulæ very useful in the treatment of general Tuberculosis and of *Tabes Mesenterica* in beasts, I venture to submit them to the notice of the readers of the VETERINARY JOURNAL, in the hope that, should any practitioners think well of them, they may receive a more extensive trial.

(1) Creosoti ... ... ℥j
Calcii Sulphitis ... ... ℥ij
Ferri Sulphatis ... ... ℥iij
Pulv. Zingiberis ... ... ʒj
Misci : fiat pulvis.
To be given twice daily in a quart of ale.

(2) Olei Morrhuæ ... ... ʒx
Calcii Sulphitis ... ... ℥iij
Ferri Sulphatis ... ... ℥iij
Liquoris Strychniæ ... ... ℥ij
Misci : fiat haustus.
To be given once or twice daily.

(3) Olei Morrhuæ ... ... ʒviij
Tinctura Gummi Eucalypti ... ʒss
Calcii Sulphitis ... ... ℥ij
Misci : fiat haustus.
To be given once daily.

This latter is especially beneficial when there is much diarrhœa. I have not as yet administered it nearly so often as the two former prescriptions, but I believe it to be equally if not more efficacious.

Editorial.

THE EXTINCTION OF FOOT-AND-MOUTH DISEASE.

THERE is much reason for congratulation that, in these days of extreme agricultural depression, one of the animal scourges which has done it so much injury for so many years is at last all but, if not completely, extinguished in these kingdoms. Why Foot-and-mouth Disease, Contagious Pleuro-pneumonia, and others of those destructive maladies which owe their existence solely to their infective principle, were not suppressed long ago is one of those questions which can only be answered by first taking cognizance of the state of our knowledge of these maladies when first they began to prevail, the ignorance of the public with regard to them, and the hostility to legislative interference when their nature was subsequently demonstrated and the measures necessary for their limitation indicated, as well as the opposition of those whose interests were supposed to be threatened by restrictive measures, and the apathy of legislators to recognise the grave injury the country was sustaining through the losses and harassment these diseases entailed. Happily, the most troublesome and most infectious of the class, if it is not the most fatal, has been brought near to absolute extinction in the United Kingdom; and there is every reason to hope and believe we shall see no more of it, if once it is fairly cleared out, and no fresh instalment is allowed admission at any of our ports. But this is a matter of the greatest difficulty to prevent, so long as cattle are imported from infected countries, or countries through which infected animals, or their hides, or certain of their products, may pass to reach our shores. In order to be safe in this respect, absolute prohibition of importation from these countries should be rigidly enforced; for slaughter at the place of debarkation is far from ensuring immunity, as experience already testifies. And it must be remembered, too, that perhaps we are not yet completely freed from the infection. Now and again, here and there, at places widely apart, there have been outbreaks which, though apparently the last flickerings of the flame that a short time ago was blazing so extensively and so vividly, show that the embers may yet be smouldering in many places, and, unless carefully watched, might cause a widespread conflagration again. The question of the vitality of the germs of the disease is far from being settled, as we have no definite information as to whether they quickly perish when they are deprived of their proper pabulum—animal fluids and tissues—or whether, like the germs of some other cognate disorders, they may not, when under the influence of favourable circumstances, maintain their vitality—their excessively active germinating properties—for a long period. There are instances recorded (in "Veterinary Sanitary Science and Police," for example) in which fresh outbreaks of the malady have occurred on farms, months after it had been present, and without any possible chance of infection having been introduced from without. The outbreak in Australia some years ago was due, it is supposed, to hay tainted with the virus, which had retained its activity during the time the voyage occupied. In the presence

of these instances—and they are not a few—it would be well to err on the safe side, and to consider the germs as endowed with a considerable amount of vitality. This decision would lead to more care being taken, especially in the matter of thorough cleansing and disinfection of premises, utensils, and everything likely to "harbour" the potent virus. The longer the period that elapses without an invasion of the disease, so the more serious it will be should a fresh instalment of the poison be introduced from abroad, from the greater susceptibility that will have been engendered in the new generations of animals which have never been exposed to its influence, and which will cause the scourge to spread among them like fire over a dry prairie. All the more need, therefore, for the severe exclusive measures, and the establishing of the most perfect suppressive machinery which sanitary science can devise.

Though there is every probability that we have got rid of one of the more serious contagious diseases of animals, it must not be forgotten that our cattle-farm and dairy are not exempted from Contagious Pleuro-pneumonia—a much more fatal and destructive disorder than that we have suppressed, and which yet lingers in a threatening manner in England and Scotland, and, it is surmised, prevails rather extensively in Ireland. A determined effort should now be made to stamp out this dangerous bovine scourge, and so be free from an ever-present danger from a most insidious contagion. Then there is the Swine-plague to be exterminated, and Scabies in sheep, as well as Glanders in horses, and Distemper and Rabies in dogs, as well as Tuberculosis in cattle, which menaces the public health, while it subtracts from the public wealth—all preventable, and only requiring the application and earnest enforcement of well-known sanitary measures to render them as scarce as Foot-and-mouth Disease now is. The veterinary profession has already accomplished much in relieving the public from the injurious operation of contagious diseases among animals; but only a portion of its work in this direction has been accomplished, and it only requires the necessary powers and assistance to entirely eradicate all those disorders which prey upon the health of the domesticated animals, diminish their value to mankind, and may even prejudice human life, and yet owe their maintenance solely to their contagious properties.

EXAMINATIONS OF THE ROYAL COLLEGE OF VETERINARY SURGEONS.

AT the meetings of the Court of Examiners of the Royal College of Veterinary Surgeons held on the 30th and 31st March, and the 1st and 2nd April, 1885, the following students from the Royal Veterinary College were admitted members of the profession:—

Mr.	W. Brigg	Nazing, Essex.
„	H. E. C. Selfe	Blackman Street, Borough.
„	Thos. William Turner ...	Bainham, Thetford.
„	A. E. Richardson	Burrage Road, Woolwich.
„	F. E. Meek...	Stamford Hill, London.

Mr.	J. S. Vickery	... ...	Kingsbridge, Devon.
„	W. James ...	... ...	Tisbury Road, Brighton.
„	H. G. Rogers	... ...	Brompton Road, S.W.
„	G. E. King...	... ...	Diss, Norfolk.
„	W. Littlewood	... ...	Hempstead, Norfolk.
„	E. R. Ebbetts	... ...	Hanworth, Norfolk.
„	Alfred Cawdle	... ...	Torquay, Devon.
„	W. E. Cawdle	... ...	Torquay, Devon.
„	J. Blakeway	... ...	Stourbridge, Worcestershire.
„	H. Buckingham	... ...	Harleston, Norfolk.
„	H. J. Dawes	... ...	West Bromwich.
„	H. L. Somers	... ...	Brighton.
„	F. C. Mahon	... ..	Southsea.
* „	Austin Peters	... ...	Boston, Mass., U.S.A.
„	E. R. Smythe	... ...	Bracebridge, near Lincoln.
„	C. Winteringham	... ...	Croft, near Darlington.
„	A. Brassington	... ...	Wolverhampton.
„	W. R. Walker	... ...	Plymouth.

The following students passed their *Second Examination* on the 8th, 9th, 10th, and 11th April :—

Mr. A. J. Proctor.
„ F. P. Gooderson.
„ R. Polglase.
„ N. Blancard.
„ F. S. Lucking.
„ F. W. Melhuish.
„ W. J. Hatton.
„ R. W. Dixon.
* „ E. S. Gubbin.
„ C. A. Johns.
* „ L. P. Reas.
„ W. E. Dain.
† „ A. Peale.
* „ E. A. West.

* Mr. C. A. Lye.
„ W. A. Dellagana.
* „ R. A. Philp.
„ T. H. Hobson.
„ W. Rattee.
„ P. G. Bond.
„ T. E. W. Lewis.
„ J. D. Roberts.
„ C. E. D. Dayus.
† „ C. H. T. Bray.
* „ F. Warren.
„ W. T. Wilson.
„ H. N. Carter.

The following students passed their *First Examination* on the 13th April :—

Mr. G. Reddish.
„ C. K. Dobson.
„ W. R. Kennedy.
* „ R. B. Autton.
„ J. H. Bell.

Mr. R. H. Singleton.
„ W. J. Wagstaffe.
„ J. H. Stedstone.
„ W. Sheal.

Examinations in Scotland.

At meetings of the Scottish Section of the Board of Examiners held in Edinburgh and Glasgow on and between April 13th and 29th, the following gentlemen passed their *Final Examination*, and were admitted members of the profession :—

New Veterinary College.

Mr.	R. Rimmer...	... ...	Wigan.
„	T. Shepherd	... ...	Lancaster.
„	R. Porch ...	... ...	Bristol.
„	C. Campbell	... ...	Edinburgh.
„	E. J. Lawson	... ...	Manchester.

Mr.	M. J. O'Carroll	... ...	Charleville, Co. Cork.
„	H. Wilkinson	... ...	Manchester.
„	G. H. Simpson	... ...	Leeds.
„	R. Price ...	... ...	Mold, Flintshire.
„	A. Macarthur	... ...	Perth.
„	J. A. Hodgman	... ...	Ramsgate, Kent.
„	T. H. Secker	... ...	Knaresborough, Yorks.
„	W. Bannatyne	... ...	Douglas, Lanarkshire.
„	R. W. Dawtrey	... ...	Chichester.
„	J. Purdy ...	... ...	Belfast.
† „	J. C. Robinson	... ...	Peterboro.
„	A. Kay ...	... ...	Lochee, Dundee.
„	O. Barrow ...	... ...	Manchester.
„	S. Chambers	... ...	Huddersfield.
„	J. Moore ...	... ...	Morpeth.
„	W. Blunt ...	... ...	Lutterworth, Leicestershire.
„	F. W. Kendall	... ...	Leeds.
„	W. D. Connochie	...	Selkirk.
„	F. C. Golden	... ...	Dudley.
„	D. Charnock	... ...	Liverpool.
„	W. Noar ...	... ...	Manchester.

Dick Veterinary College.

Mr.	J. Jeeves ...	... ...	Scarborough.
„	B. O. Meek	... ...	Wigan.
„	James Player	... ...	Edinburgh.
„	H. F. Rickell	... ...	Warter, Yorks.
„	J. Armstrong	... ...	Penrith.
„	G. Kinnell ...	... ...	Dumfries.
„	J. S. Lloyd ...	... ...	Oswestry, Salop.
„	W. Tyndall...	... ...	Ayton, Yorks.
„	H. Wilkinson	... ...	Newcastle.

Glasgow Veterinary College.

Mr.	N. B. Green	... ...	Irvine, Ayrshire.
„	Joseph Ward	... ...	Manchester.
„	A. Marshall	... ...	Glasgow.
„	R. Anderson	... ...	Bellshil, Lanarkshire.
„	W. Ward ...	... ...	Manchester.
„	W. Hodgson	... ...	Carlisle.
† „	Edwin Sayer	... ...	Rainham, Kent.
„	John McKenna	... ...	New Galloway, Kirkcudbright.
„	R. S. Mitchell	... ...	Islay, Argyleshire.
„	D. McIntyre	... ...	Loch Awe, Argyleshire.
„	W. Carruthers	... ...	Leshmahagow, Lanarkshire.
„	Daniel Gray	... ...	Glasgow.
„	J. A. Cunningham	...	Strathbungo, Renfrewshire.
„	Robert Yates	... ...	Glasgow.

The following passed their *Second Examination* :—

New Veterinary College.

Mr. T. W. Dinwoodie.
„ J. Caldecott.
Mr. C. Weatherall.
„ A. Reah.

Mr. J. Ogden.
„ F. Wormald.
„ W. Fletcher.
„ P. Young.
„ F. Armstrong.
„ C. Blackhurst.
„ A. Neish.
„ P. Bell.
„ P. Pike.
„ G. Finlay.

*Mr. T. Atkinson.
„ A. Watson.
„ S. Bradley.
* „ H. Newsome.
* „ M. Cleary.
* „ W. Hall.
* „ J. Buxton.
„ J. Urmson.
† „ T. Bowhill.
„ H. Clarke.

Dick Veterinary College.

Mr. J. Carruthers.
* „ D. Cameron.
„ J. Hall.
„ J. Keane.
„ J. Laughlin.
„ A. Marshall.
„ G. Pearson.
„ E. Watson.
„ A. R. Young.
„ M. Quinn.

Mr. A. Cleasby.
„ H. Drinkwater.
* „ G. Howie.
„ J. Kelly.
„ C. McGregor.
„ J. R. Moir.
„ R. Tibaldi.
* „ W. Weighill.
„ P. Duffy.

Glasgow Veterinary College.

Mr. B. Cook.
„ J. Nicholson.
„ J. McClean.
„ R. Marsh.
„ J. C. Young.
„ J. Gibson.
„ J. M. Crawford.

†Mr. R. Barron.
*„ J. Dawson.
„ R. S. Thompson.
„ R. Clunas.
„ W. H. Dalrymple.
„ J. C. Thompson.
„ R. B. Freeman.

The following passed their *First Examination*:—

New Veterinary College.

Mr. F. Muirhead.
† „ J. Clarkson.
„ G. Radcliffe.

Mr. W. Westgate.
* „ C. Hagleton.

Dick Veterinary College.

Mr. W. Dagg.
„ R. Mylne.
„ W. Day.
„ T. Robson.
„ H. Foulds.
„ W. H. McArthur.

Mr. E. C. Winter.
* „ J. O'Brien.
„ R. Craig.
„ G. Prickett.
„ R. Glaister.

Glasgow Veterinary College.

Mr. J. D. Miller.

R. RUTHERFORD,
Secretary, Board of Examiners (Scottish Section).

* Marked thus passed with "Great Credit."
† Marked thus passed with "Very Great Credit."

GLASGOW VETERINARY COLLEGE.

THE winter session of this institution terminated on 15th April, and on the four following days the oral examinations of the Royal College of Veterinary Surgeons were conducted within the museum of the college. The candidates for diploma were also subjected to a rigid practical examination on horses, cattle, and sheep, selected and brought to the College for that purpose. The Board of Examiners included:—Mr. J. Roalfe Cox, F.R.C.V.S.; Professor Pritchard, M.R.C.V.S.; Professor Duguid, F.R.C.V.S.; and Mr. J. Vaughan, F.R.C.V.S., London; Mr. W. A. Taylor, F.R.C.V.S., Manchester; Mr. George A. Banham, F.R.C.V.S., Cambridge; Mr. C. Cunningham, M.R.C.V.S., Slateford; Mr. Archd. Robinson, M.R.C.V.S., Greenock; Mr. Thomas Campbell, M.R.C.V.S., Kirkcudbright; and Mr. Rutherford, M.R.C.V.S., Edinburgh. The following gentlemen were also present as *ex officio* members:— Principal M'Call, Professors Cooke, Limont, Macqueen, and Renfrew, Glasgow Veterinary College. The following gentlemen were awarded the diploma of the Royal College of Veterinary Surgeons:—

Messrs. Edwin Sayer, Rainham, Kent; John M'Kinna, New Galloway; R. S. Mitchell, Islay; William Carruthers, Lesmahagow; Donald Macintyre, Loch Awe; Robert Anderson, Bellshill; N. B. Green, Irvine; William Ward, Manchester; Joseph Ward, Manchester; Alexander Marshall, Glasgow; William Hodgson, Brigham, Carlisle; John A. Cunningham, Glasgow; Daniel M. Gray, Glasgow; Robert Yates, Glasgow.

The following students presented themselves for the second professional examination, and were successful in passing:—

Messrs. R. Barron, Sutton, near Chester; James Dawson, Cootehill, County Cavan; Benjamin Cook, Swansea, South Wales; John Nicholson, Thornliebank; John M'Clean, Kilcoo, County Down; R. S. Thomson, Kirkwall, Orkney; Richard Marsh, Ballynahinch, County Down; Robert Clunas, Auldearn, Nairn; John C. Young, Glasgow; W. H. Dalrymple, Stranraer; James Gibson, Biggar; Joseph C. Thompson, Londonderry; James M. Crawford, Ayr; and Richard Birt Freeman, Dublin.

Medals granted by the Highland and Agricultural Society of Scotland, the late Professor Allen Thomson, of London, and Principal M'Call, and certificates of merit by the College were awarded in the different branches of study as follows:—

Horse Pathology (written examination), gold medal (Principal M'Call)—Mr. Alex. C. Forbes, Glasgow; silver medal (H. and A. S. of S.)—Mr. Edwin Sayer, Kent; first-class certificates, Messrs. William Ward, Weir, Doyle, Jos. Ward, Cunningham, and Hodgson; second-class certificates, Messrs. Carruthers, Marshall, Green, M'Intyre, M'Kinna, and Ferguson. Cattle pathology (written examination), gold medal (Principal M'Call)—Mr. Edwin Sayer; silver medal (H. and A. S. of S.), Mr. A. C. Forbes; first-class certificates, Messrs. Wm. Ward, Doyle, Weir, Jos. Ward, M'Kinna, and Cunningham; second-class certificates, Messrs. Hodgson, Carnochan, Green, Marshall, M'Intyre, and Carruthers. Practical examination of horses as to soundness, age, operations, etc.—Gold medal (Principal M'Call), Mr. Edwin Sayer. Practical examination of cattle and sheep as to age, soundness, operations, etc.—Gold medal (Principal M'Call), Mr. Edwin Sayer. Morbid Anatomy — First-class certificates, Messrs. Doyle, M'Kinna, Sayer, Jos. Ward, and Hodgson; second-class certificates, Messrs. Gray, Carruthers, Leckie, Reid, and W. Ward. Anatomy (special and comparative)—Silver medal (H. and A. S. of S.), Mr. Robert Barron; first-class certificates, Messrs Marsh and Dawson; second-class certificates, Messrs. Gibson, Dalrymple and Caldwell. Histology and physiology—Silver medal (H. and A. S. of S.)

Mr. James Dawson; first-class certificates, Messrs. Barron, Caldwell, Marsh, and R. Thomson; second-class certificates, Messrs. Gibson, Young, Freeman, and Clunas. Best oral examination on anatomy, physiology, and histology—Gold medal (the late Professor Allen Thomson), Mr. Robert Barron. Mr. Campbell's prize for the best essay on "Tuberculosis" and "Sturdy in Sheep" was awarded to Mr. Edwin Sayer. At the close of the examinations the Secretary of the Board of Examiners intimated that Mr. Dawson had passed with "Great Credit" and Messrs. Sayer and Barron with "Very Great Credit."

NEW VETERINARY COLLEGE, EDINBURGH.

AT the termination of the session, Principal Williams distributed the medals and certificates of merit to the successful students. Principal Williams, in his concluding remarks, trusted that the students about to present themselves for examination would be as successful as the students who had been before the board of examiners. The Principal impressed upon the students that when they commenced to practise for themselves they should be patient, and not go from place to place every few months because they had not got large practices. The following were the prize-takers :—

Pathology of the Horse—Messrs. John Moore, silver medal of the Highland and Agricultural Society; J. A. Robinson, certificate of merit; and S. Chambers, certificate of merit. Pathology of the Ox—Messrs. J. A. Robinson, silver medal of the Highland and Agricultural Society; and John Moore and W. D. Connochie, certificates of merit. Anatomy—Messrs. T. Bowhill, silver medal; and Bradley, Cleary, and Watson, certificates of merit. Physiology—Messrs. J. Cleary, silver medal of the Highland and Agricultural Society; and T. Bowhill, silver medal presented by Mr. D. Hunter—equal; and W. Hall, certificate of merit. Chemistry—Messrs. F. Austenberry, silver medal of the Highland and Agricultural Society; and J. Clarkson, medal presented by Professor M'Adam; £20 prize for last year presented by the Principal, Mr. John Moore; £20 prize for this year, Mr. T. Bowhill. Certificates of merit were awarded to the following gentlemen—Curators of Museum—Messrs. Kay, Robinson, and Moore. Prosectors—Messrs. Somers, Connochie, Rimmer, and Lawson. Dressers, Dispensers, and Visitors—Messrs. Galloway, Barron, Shepherd, Rimmer, Kay, Robinson, Drabble, Secker, Wodyman, Dawtrey, Kayes, Wilkinson, Lawson, Connochie, Anderson, Middlehurst, Noar, Aggio, Porch, Jackson, Bannatyne, Duckworth, Moore, Somers, Chambers, Blomfield, Harris, Allan, M'Arthur, Fenwick, and Simpson. The Highland and Agricultural Society presented a copy of their book on the Agriculture of Scotland to each of the students who obtained certificates of merit for dressing, dispensing, and visiting.

Proceedings of Veterinary Medical Societies, &c.

ROYAL COLLEGE OF VETERINARY SURGEONS.

FORTY-SECOND ANNUAL GENERAL MEETING.

HELD AT THE FIRST AVENUE HOTEL, HOLBORN, MONDAY, MAY 4TH, 1885.

Professor WALLEY, President, in the chair.

THE following gentlemen were present :—Messrs. N. Almond, B. C. Arthur, F. J. Ashley, G. A. Banham, W. G. Baswell, A. W. Barnes, T. Briggs,

A. Broad, J. H. Brown, T. Campbell, B. Cartledge, H. J. Cartwright, H. W. Caton, T. Corby, C. Dayus, E. C. Dray, G. R. Dudgeon, H. Dyer, W. A. Edgar, E. Faulkner, H. Ferguson, J. Fraser, J. M. Gillingham, G. Gray, W. S. Harrison, M. Hack, T. Hopkin, W. Hunting, T. H. Lewis, A. Lawly, A. Lawson, C. Ladds, S. Locke, J. Lambert, H. Lawrence, J. Mackinder, J. Malcolm, J. B. Martin, J. McCall, W. Mole, W. H. More, J. Penberthy, J. Polding, W. Pritchard, W. Reekie, A. E. Richardson, W. Robertson, A. Robinson, F. G. Samson, W. K. Shaw, A. H. Santy, C. Sheather, H. E. C. Selfe, W. Shipley, H. L. Simpson, J. F. Simpson, H. M. Singleton, S. H. Slocock, F. R. Stevens, P. Taylor, W. A. Taylor, I. Vaughan, W. J. Welsby, J. B. Wolstenholme, E. Woodger, J. Woodger, T. Wooff, F. W. Wragg, and the Secretary.

The SECRETARY (Mr. A. W. Hill) read the notice convening the meeting, and the minutes of the last general meeting.

The SECRETARY announced the result of the election of Members of Council to have been as follows :—Professor Walley, 465 ; Messrs. P. Taylor, 414 ; Dray, 374 ; Harpley, 242 ; Mulvey, 241 ; Carter, 240 ; Robinson, 235 ; Blakeway, 226 ; Reynolds, 218 ; Barford, 141 ; Russell, 136 ; Hunting, 135 ; Gresswell, 87 ; of these the first six were elected.

Mr. P. TAYLOR proposed a vote of thanks to the gentlemen who had acted as scrutineers :—Messrs. Dudgeon, Selfe, Singleton, Richardson, Wilkie, Meek, Welsby, Reekie, Rogers, and Farmer.

Mr. DRAY seconded the resolution, which was carried unanimously.

The SECRETARY stated that letters expressing regret at unavoidable absence had been received from Dr. Fleming, Sir Frederick Fitzwygram, and Messrs. Simcocks, Whittle, Perrins, and Harpley.

The reception and adoption of the report and balance-sheet having been unanimously carried, the President declared the report open for discussion.

Mr. OWLES observed that the expenses of the annual meeting last year appeared to be rather higher than usual, namely £22 3s. 6d., and asked the Treasurer to account for that.

The TREASURER (Mr. Dray) said he was not at all surprised that this question had been asked. The following were the items of the account :—Use of principal dining-hall for annual meeting, £4 4s. ; four tickets at 25s. each, £5 ; refreshments for vocalists, 7s. 6d. ; 10s. 6d. for every one less than 45 as arranged, £2 2s. ; supplying vocalists, piano, and refreshments, £10 10s. When the account was brought before the Finance Committee, he protested (as Treasurer) against these charges (hear, hear), and he also protested at the meeting of the Council, and maintained that not a sixpence of the funds of the College should be appropriated for the dinner ; but he was outvoted.

Mr. PRICE thought the report might have been lengthened. With regard to the first paragraph of the report : "The Council has to report that since the last annual meeting 102 students from the different veterinary schools have received the diploma of the Royal College of Veterinary Surgeons," he thought it would be a good thing if the Council would give them a tabulated statement of the results of examinations for, say, ten years, so that the profession might see whether its numbers were increasing or diminishing. With regard to the purchase of the building in Red Lion Square, he congratulated the Council upon having acquired it for so moderate a sum as £2,133, and thought the members ought to congratulate each other that a suitable site had at length been obtained. With regard to the paragraph of the report which stated that the architect had been instructed to prepare plans and furnish estimates for the erection of a new building, he thought that members ought to receive some further communication from the Council with reference to this important subject. Here was a building which was to cost something like £6,000, and no idea was given them as to what the

character of the interior was to be. With regard to the cost of the new building, which was stated would be about £3,500, he could not gather any meaning. If that sum was to include fittings and furniture that was a sufficient explanation. He thought that the Council would have done well to allow the Secretary to remain on the premises, as he had done in the past; and, when he took into consideration that they would have to allow him a suitable sum for a residence elsewhere, he thought that the policy of the Council in that respect might be questioned. The Council expressed a hope that the balance of the amount required for the new building would be liberally subscribed by the profession, and he had no doubt it would be; but he did not think the Council should have stated that if sufficient funds were not subscribed the deficiency would be made good out of the sinking fund. As a matter of business, they should have left that part out, as in that case more subscribers would, no doubt, have been induced to come forward. With regard to the form of the report, whilst generally approving the same, he thought that by numbering the paragraphs it would be a convenience. With regard to the Fellowship degree, he thought it high time that members of the College should take action in this matter. It seemed to him that the business of the profession would be left entirely in the hands of a few Fellows. The gentlemen who were principally making themselves Fellows were gentlemen from the army. Of course, as they had plenty of time on their hand and little or nothing to do, they were in a position to study for the Fellowship degree. As a question of policy, the profession ought no longer to allow that clause in the Charter to exist which provided that no members of the Council should be elected unless Fellows of the Royal College. He thought that members of the profession who were not Fellows might be equally suitable persons to be elected on the Council as were the Fellows.

Mr. HUNTING observed that no subject had lately excited more interest amongst members of the profession than the subject of examinations. A large proportion of the profession believed that the rejection of students lately had been due to their want of practical knowledge. As a matter of fact, it had been nothing of the sort, for the men who had had the privilege of being pupils, and were supposed to have practical knowledge in the largest degree, had been plucked in the largest proportion. It was most important to find out what was wrong, and the only way to do so was, he thought, to appoint a committee to inquire into the matter, and take evidence in the same way that a Parliamentary committee would. The examinations were arranged in such a way that the result was that in the first session the students took up those subjects which they were to be examined upon immediately, and neglected others. In the second session they tried to cram the whole of the anatomy into the one session, which could not be satisfactorily done. With regard to the statement of the last speaker that the candidates for the Fellowship were principally army men, he wished to point out that of three men who had just obtained the Fellowship degree, there were 200 per cent. more practitioners than army men. (Laughter.) With regard to the Fellowship, he thought that members of the profession had no right to grumble at the action of former councils who established the Fellowship in order to raise the status of the profession. The possibility of becoming members of the Council was held out to those who were successful in the examinations, but the standard was too high, and the money cost excessive. Fifteen guineas to a man who had only been five years in practice, and had hardly got the horse by the head, was a large sum of money to part with, and whether a man had attained to the Fellowship degree or not, he thought he had a right to represent, or be represented, on the Council Board, where business habits were as important as scientific attainments or a scholastic

education. There were two ways of getting over the difficulty—one being that the majority of the profession should obtain the Fellowship degree, and the other that the Council should deprive those men who had got it of their just rights, and break the contract which was entered into with them when the Council wasted their time and took their money. He suggested that the examination should be made a little more practical, and that the obstacles to obtaining the Fellowship degree should be removed by postponing the time at which Fellows should come in. There was a decided contract with the Royal College of Veterinary Surgeons which they who were Fellows did not intend to give up, simply because they were told that they were not as good as other men.

Mr. SIMPSON (Maidenhead) referred to the original Charter, which provided for the election of a President, Vice-President, and Members of Council from amongst the members of the said body politic and corporate. Further on, the Council were empowered to alter, suspend, repeal, and make new by-laws, provided that the same were "not repugnant to these presents or the laws of this our realm." Further on, a Supplemental Charter was applied for, in regard to which he would boldly express his opinion that it was illegal. No governing body had the right to make by-laws which would override an Act of Parliament, and he doubted if this body had any right to a Supplemental Charter which contradicted the spirit of the previous one. By what right were members of the profession who obtained their diploma prior to this Supplemental Charter, to be deprived of the rights to which they were entitled when they obtained their diploma? Referring next to the report, which stated that it is "gratifying to know that a larger number of members than usual have entered their names for this degree at the next examination," Mr. Simpson said he wished to be informed as to the extent of the increase.

The SECRETARY stated that the additional number of those who had written for particulars was about nine or ten, of whom several had already declared an intention of entering for the examination, whilst others were still communicating.

Mr. SIMPSON added that it was a mistake to suppose that those who were opposed to Clause 9 of the Supplemental Charter were opposed to the Fellowship degree. He was himself decidedly in favour of the Fellowship degree; but what he was distinctly opposed to was that only Fellows of the College should be elected to the Council, for the reason that privileges were given to the older members when they obtained their diploma, of which the Council had no right to deprive them.

Mr. LAMBERT, Army Veterinary Department, characterised the statement that army veterinary surgeons went in for the Fellowship examination because they had nothing to do as most ungenerous. An army veterinary surgeon often had a great deal to do, being frequently responsible for the health and treatment of from 1000 to 1500 horses. In addition, they had to serve in all climates, and were as much exposed to disease and violent death as any class of men in the army. He himself had frequently to perform 150 operations in one morning when on a campaign. He agreed with what Mr. Hunting said as to the Fellowship, which was a thing which, no doubt, conduced to the progress of the profession.

Mr. OWLES did not think that the fact of a student having been an apprentice was conclusive that he was not rejected in examination for want of practical knowledge. That was a question which the Examiners alone could answer. He agreed that it was very important that some remedy for the existing state of things should be found. He confirmed what had been said as to army veterinary surgeons, having for thirty-two years held the position now held by Mr. Lambert. He really did not find the position such an idle one

and concluded that Mr. Price had really spoken from want of knowledge. He believed it was because the army men were so fully occupied that they were better prepared to undergo the examinations for the Fellowship.

Mr. WILSON (Berkhampstead) observed that the question of the continuance or otherwise of the Fellowship degree was a question of great importance to the profession, but he did not think that they should find fault with the Council now. There were no doubt certain ways in which they could get out of the difficulty, but he protested against their going to the Government and asking them to be good enough to rescind that which they gave them ten years ago. He drew a parallel between the history of this College and the Royal College of Surgeons, and suggested that this College should meet the present difficulty by following in the footsteps of the Royal College of Surgeons, and admitting certain members without examination to Fellowship on payment of a certain fee. He thought that members of good reputation, high moral character, and good standing in the profession might be admitted to be Fellows without detriment.

Mr. BRIGGS pointed out that Members of the Council who were members at the time the Supplemental Charter was obtained, retained their right of election to the Council Board in virtue of their having been Members of the Council at that time. He protested against any rights which he had obtained being taken from him.

Mr. CARTLEDGE observed that there were 121 Fellows of the College, and that it was therefore unlikely that there would be any deadlock for some time to come for want of Fellows.

Mr. HOPKINS hoped that members would look dispassionately at the question of examination, sinking personal feeling, and acting for the welfare of the profession. An easy way out of the difficulty was for members who wished to be on the Council, to come forward and pass the Fellowship degree. The College would resemble children playing in a nursery, if they were now to go to Government and ask them to rescind what they gave such a short time ago. He thought that the present position of affairs ought to be an incentive to members to come forward for the Fellowship degree.

Mr. WOLSTENHOLME stated that the College of Surgeons were agitating amongst themselves for the very alteration which this body was now asking for.

Mr. SIMPSON (Windsor), while in favour of retaining the Fellowship degree, saw a difficulty in carrying on the work of the profession fairly towards individual members under existing circumstances. It was, no doubt, a matter for compromise, for no one would think of taking from members the rights which they had already obtained; and, with a view to the settlement of the question, he would give notice to move, at the next meeting, for the appointment of a committee to inquire into the matter. He could scarcely believe that the Council would unanimously grant him that committee. He would, of course, take care that it should not be composed of Fellows alone, but be of a representative character.

Mr. W. A. TAYLOR rose to support the Council in the action they had already taken with respect to the Fellowship degree. He would suggest that the degree might possibly be made more popular, by reforming the conditions of examination. A reduction might be made in the amount paid for the Fellowship diploma, and those Fellows who had it presented to them without examination ought to have paid more than Fellows who had to undergo examination. The suggestions he was now making emanated from his friend, Mr. Ward, who was also a Fellow by examination. Another suggestion was to localise the examinations, by having them carried on at different centres in the manner of the Oxford and Cambridge Local Examinations; also that the educational test should be abolished where candidates had obtained their diploma prior to the year 1876.

Mr. EDGAR said there were hundreds of men who were fitted to act as Members of the Council or of the Examining Body, and the only objection they had to going up for the Fellowship degree was the fear of rejection. But he would ask whether, in the evening of the nineteenth century, any man who hesitated as to answering a question put to him in examination was fit to occupy a representative position? He would raise his voice against such a feeble action as the rescinding of Clause 9, and with regard to the method adopted by the Examiners of expressing approval of a candidate or the reverse by such expressions as "good," "bad," or "indifferent," he failed to see any reason for departing from the system of marks adopted by other examining bodies.

Professor PRITCHARD then moved the adoption of the report.

Mr. WILSON seconded the motion.

The PRESIDENT said that, before putting the resolution, there were one or two remarks which he wished to make as their President, and also as a summing-up of the various matters which had been touched upon. Mr. Price, who spoke about the length of the report, must be perfectly well aware that the reports of the Council meetings appeared in the professional journals, and he did not think that the Council could be asked to draw out a lengthened report touching upon everything that had been done or said during the past year. As one who had to do with the drawing out of the report, he felt that what was said in the report was sufficient for all practical purposes. There was one thing, however, in which he sympathised with Mr. Price, and that was in thinking that the members should have further information in reference to the building; but the chief points had been mentioned in the circular. However, if any gentleman wished to see those plans, or wished any information in respect to them, he could do so on application to Mr. Hill, who was always ready to supply every information. The sketch that had been sent out, and the few remarks by which it was accompanied, were all that was thought necessary in calling the attention of the profession to the matter. Mr. Price also made a remark about the number of students that were passing each year, and asked to have a tabulated statement. He himself saw no possible objection to this, and he had no doubt that if Mr. Price or any other member of the profession desired such a statement it could readily be obtained; but, as the names of the successful students were always inserted in the professional journals, it was not considered necessary to again mention them in the annual report. With regard to the Secretary's accommodation, the whole question of what the object of the building should be was thoroughly gone into by the House and Building Committee, and with the view of making the building one that would be worthy of the profession, and of providing for everything that could be provided for. It was found that if accommodation for the Secretary were provided, it would cost a vast deal more money. The estimate was for something like £1,500 more, and it was thought that in the present condition of the profession it would be hardly wise to spend more money in building a separate house. Mr. Price also made a remark about the cost of the dinner, and he himself was of opinion with Mr. Dray that nothing should be spent out of the Council moneys for purposes other than those belonging to the work of the Council; in fact, such an expenditure was not likely to arise again. Mr. Hunting had made a remark as to students only studying those subjects in which they were to be examined. He was afraid there was some little truth in that, but perhaps not so much as Mr. Hunting thought. The idle student, doubtless, would not trouble himself about anything that was not directly before him, and would only care for the present; but, on the other hand, he was sure there were many students who did not put off their work in this sort of way, but worked honestly and earnestly from the earliest moment in order to

prepare themselves for examination. With reference to the Fellowship degree, he had quite anticipated that some discussion would take place to-day in connection with that subject. The matter certainly might be viewed in various lights, but he was quite certain of one thing—viz., that when the Council obtained that Supplemental Charter with the object of improving, as they thought at that time, the position of the profession and raising it in the eyes of all educated people, they did not think there would be so few men coming forward for that degree. On looking over the list of Fellows, what did he find? In addition to the hundred original Fellows, there had only been thirty-nine or forty who had passed the examination. Deducting some nineteen men who had died since that Charter was obtained, the number of Fellows remaining was only some 120 or 121. Looking at the matter from this point of view, it did seem remarkable that the profession should be governed by so small a proportion of its members; and a very strong argument had been used by Mr. Simpson, of Maidenhead, in reference to the original rights of the members. He confessed that he had never looked at the matter in that light before, and that there was a great deal in Mr. Simpson's argument. The right of being elected as Members of the Council and as Examiners had been taken from the members and given to the Fellows; but he did not suppose for a moment that those who were in the position of legal advisers to the Council would have allowed a Supplemental Charter to have been obtained in order to override anything, or to suppress anything, which was obtained by a previous Charter. Consequently, he did not think for a moment that the action of the Council was at all illegal, as was suggested by Mr. Simpson. Certainly the matter had never been presented to his mind in that light before; and if the Council found that they had at any time done anything which was illegal or contrary to the rights of any individual, they would, he thought, be very pleased to restore that man's rights. The Council had hoped, after the expiration of such a period as ten years, to have had a larger number of Fellows, but he was not at all surprised at the present time at finding that members felt that the shoe pinched. A good deal had been said about the rights of minorities, and one or two gentlemen, who had on other occasions pooh-poohed minority rights, seemed, now that they were in the minority, to have made a discovery in this direction. He was very pleased that opinions should have been expressed in reference to this matter, and that means had been suggested whereby they might get out of the difficulty. The suggestions which had been made would, no doubt, assist the Council to a very large extent in getting out of the present difficulty. The Council were quite willing to receive any suggestions from the great body of the profession, and to consider these suggestions with a view to giving every member of the profession his due right. With regard to the Building Fund, he wished to point out that in the little sketch which had been sent out it was stated that they were still short of funds, and the profession at large was being appealed to for further support. He rather thought that the subscriptions ought to be small, and that they should be spread over the whole bulk of the profession. He had pleasure to-day in handing to the Secretary two subscriptions of one guinea each, one from his colleague, Professor Baird, and one from Mr. Archibald Baird. He hoped that every member of the profession would, before the building was completed, subscribe according to his means, and not according to what he thought he was called upon to give by reason of his position in the profession. He thought they would have a building of which they need not be ashamed, and which would be useful in the future. He was extremely sorry that the foundation-stone of the building could not be laid that day; but it was found that a great deal of work was involved, and

that it was impossible to make the necessary preparations. He was afraid that there might be some disappointment in consequence, but the foundation-stone would, he hoped, be laid by whoever was President next year. That would form an epoch in their history, and be something to look back upon with pleasure.

The report was then unanimously adopted.

Mr. WILSON proposed, and Mr. HELMORE seconded, a vote of thanks to the Chairman and officers of the Council, and the proceedings terminated.

The members dined together in the evening at the First Avenue Hotel.

WESTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE Second General Annual Meeting of this Association was held at the Half Moon Hotel, Exeter, on Thursday, March 12th, 1885, J. A. Collings, Esq., President, in the chair.

Messrs. Hoadley and Elder were admitted full members of the Association, and Mr. F. Airey nominated.

Messrs. Broad, of Bath, and Raddall, of Launceston, were unanimously elected honorary associates.

The SECRETARY, in reading the report of last year's work, said that this Association was started on Feb. 7th, 1884, and that the object of the combination was to preserve the good and friendly feeling existing between veterinary surgeons in the district; to protect their political and professional interests; for the discussion of scientific subjects, and by so doing, to place themselves on an equal footing with their professional brethren in other parts of England. At their first meeting, a resolution in favour of the docking of horses by scientific practitioners was passed, and there could be no doubt but that resolution, in conjunction with others passed by similar bodies, was the means of permitting that most useful operation still to be performed. The Society—young as it was—had not been without its losses. It had to record the death of its first President (Mr. T. D. Gregory), and the resigna- of its first Treasurer (Mr. F. Gibbings), and one member, through removal from the neighbourhood. The year's work, however, was a matter for congratulation, and fully justified the establishment of the Association.

The Treasurer's Report showed the Society to be in a good financial position. Both reports were unanimously adopted.

Mr. THOMAS proposed, and Mr. W. Penhale, Jun., seconded, that J. A. Collings, Esq., be re-elected President for the ensuing year.

Mr. COLLINGS said, in accepting the honour the meeting had unanimously conferred upon him, that he hoped the same feeling of loyalty would still exist during the coming year which had existed in the past. He would do all in his power to make the Association a success, and he trusted when the termination of his year of office arrived the members would find no cause to regret the choice they had made that day in selecting him as their President.

Mr. CHASE, in proposing the Vice-Presidents, said this Association was fortunate in having, among its members, several gentlemen of influence and position, and it was greatly to be desired that the officers of an institution like this should be men of good standing; he therefore had much pleasure in proposing the re-election of the retiring Vice-Presidents, viz.:—Messrs. C. Parsons, H. W. Thomas, and T. Olver. Mr. J. P. Heath was also unanimously elected a Vice-President.

Mr. W. Penhale was re-elected Secretary, and Mr. J. H. Elder Treasurer, instead of Mr. Stevens, who resigned on his leaving the neighbourhood.

A letter was read from the Royal Counties Veterinary Medical Association, calling attention to the fact that Clause IX. of the Supplementary Charter,

unless rescinded, would come into operation in 1886. This Clause entitles Fellows only to be elected to the Council of the Royal College of Veterinary Surgeons.

The SECRETARY remarked that the matter was one of very grave importance, affecting, as it did, the whole representation of members of the Royal College of Veterinary Surgeons. The Fellows were in a very small minority, and it was scarcely fair that they should have the sole power of governing so important a body. No one would deny but there were many very capable Fellows sitting on the Council, filling their offices, he believed, to the entire satisfaction of the profession, but this equally applied to the members. It was, however, quite possible that a Fellow might offer himself and be elected who, whilst being a highly scientific man, might be totally ignorant and incapable of understanding and discharging the duties of a councilman. On the other hand, it was a well-known fact that we have in our midst plenty of members who are in every sense well qualified to undertake and fulfil all the duties appertaining to the Council with the greatest ability All he claimed was an equality ; let Fellows and members stand on the same footing in the transaction of business relating to the profession. He had no wish to disparage or reproach the honour which was undoubtedly attached to a Fellow, but he thought the Fellows themselves must now confess that the degree had not been clamoured for as they anticipated, when it was first created, and when this clause was granted, about ten years ago. The Fellowship in point of numbers being a failure, and all the foremost men in the profession having refused to have the degree, he claimed that it was only right the clause should be abolished. To allow a small number of Fellows to sit and govern an important body would, to his mind, be a retrograde step and an anomaly ; it would show a want of public spirit on the part of the profession to matters inseparable from its own vitality, and, through lack of interest in its own government, would ultimately lead to its disintegration and utter ruin.

Mr. ELDER proposed, and Mr. HEATH seconded, that the following resolution be sent to the President of the Royal College of Veterinary Surgeons: —"That it is absolutely necessary for the welfare and encouragement of the Members of the Royal College of Veterinary Surgeons that they have free and unlimited choice in the selection of members of the Profession to serve on the Council. The members of this Association therefore petition the President and Members of the Council to take the necessary steps to have rescinded Clause IX. of the Supplementary Charter granted by Her Majesty the Queen on the 23rd day of August, 1876."

Mr. THOMAS then read a very able and highly practical paper on

"*Diseases of the Horse's Foot.*"

The paper dealt mainly with Laminitis, Navicular Disease, Seedy Toe, Thrush, Canker, Corns, and Sandcrack.

In commencing his paper, Mr. THOMAS said : "No foot, no horse" was the subject of an essay he once heard read, and he thought it aptly applies in in this instance, for without good feet the most valuable animal may be rendered useless. The owner and the veterinary surgeon often have to suffer at the hands of the shoeing-smith, from bad-fitting and nailing on of the shoes, as when a nail driven too closely is drawn back and driven again, and it behoves all young practitioners, when cases of obscure lameness are brought for their inspection, to more frequently have the shoes removed in their presence. He had had horses brought to him which he considered lame in the foot, and on mentioning it to the grooms who brought them, the usual reply was : "Oh, sir, the shoe was removed yesterday, and the foot was all right ;" but on having the shoes removed by my own smith, have found positive cause for lameness. The smith who previously removed the shoe, probably

in trying the foot did not use enough pressure with the pincers to cause the animal to evince pain, so that he may mislead the groom, fearing to expose the true cause—a nail driven too close or high –lest it may bring trouble on himself. He had known instances of horses having been pricked, the shoe removed by the smith who shod him, the nail driven again in the same hole, and the horse sent away with the message, "There's nothing wrong in the foot," when a few days after great pain and lameness come on, and an issue of matter from the coronet takes place. Shoeing-smiths in large towns are great bugbears to the veterinary surgeon; they will do all they can to hide their shortcomings and malign the veterinary surgeon if he exposes their carelessness. He had known them blister the coronet, leave off the shoes, and tell the owner in their language "The horse has sprained the coffin-joint!" trusting to the blister and rest that the foot, mutilated by bad shoeing, will come right again.

Laminitis, or inflammation of the sensitive laminæ or sole, is met with under three forms—acute, sub-acute, and chronic. The causes of this disease are various, such as bad shoeing, over-paring the feet, fast driving on hard roads (especially if the animal be unfit), inaction from standing a long time in one position, over-feeding on heating food (as maize or wheat), sudden chill or metastasis.

Horses short of work, in plethoric condition, and those with flat feet and thin soles, are the more predisposed. The symptoms are well known to all, and need but little mention:—there is the slow and painful progression at starting, the animal placing the heel on the ground first, the hind legs placed forward under the body, heat, throbbing plantar arteries. When all four feet are affected, the pain is most acute; the animal stands with all four legs in a heap, lifting up one hind foot and then the other in great pain; the fever is very great; pulse and temperature very high. In some cases, if seen early and treatment adopted, it may pass off as a slight congestive attack, or if the inflammation be severe and early relief is not afforded, structural change takes place, rendering the animal almost useless for some time for road-work. He found great difficulty in inducing exercise, as recommended by Mr. Broad; he had the shoes removed, bled freely from the coronet, and applied hot poultices to relieve the distended vessels, gave a full dose of physic, with Tinct. Aconite and Pot. Nit. as a febrifuge, and if the pain be very severe, subcutaneous injection of morphia will give relief. When the pain and fever have somewhat subsided, he had the shoes recommended by Mr. Broad tacked on, ordered frequent exercise and cold applications to the feet, stood the patient in a cold water bath or clay puddle if possible. The acute form sometimes passes off, leaving but little structural change if the treatment be early adopted, but when neglected it leads to exudation between the horny and sensitive laminæ. The natural glutinous secretion from the vascular laminæ which holds together that and the horny laminæ being suspended causes a separation and descent of the pedal bone, and sometimes ossification and suppuration of the sensitive laminæ takes place (mostly at the coronet); the same thing happens between the vascular and horny sole, leaving a hollow space and, as sequelæ, seedy toe and pumiced soles. For the chronic form there is no treatment more effectual than Mr. Broad's shoe, the heel of the foot to be kept low and the toe shortened, repeated blisters to the coronets, and allow a long run on a wet pasture.

Corns are shown by a bloodstain between the bar and inflexure of the wall forming the heel of the foot, and are results of a bruise to the sensitive sole and extravasation of blood from the part. It occurs in the forefeet and, in nearly every instance, to the inside heel. It is more frequently found in feet with low heels and in high-actioned horses and is the result of bad shoeing from uneven pressure of the shoe. Once a corn always a corn, but good

shoeing will keep off all mischief as regards lameness. A corn may, if early attended to, be a source of very little inconvenience ; but if the cause remains in operation and the horse worked on, suppuration takes place, frequently breaking out at the coronet, sometimes ending in a horn tumour and disease of the pedal bone. If it is a severe case with pain and lameness remove the shoe, pare the heel, giving exit to any pus that may be formed, apply hot poultices, and give a dose of physic. Careful shoeing and not allowing the shoes to be too long worn are essential in keeping the animal to work and free from lameness.

Mr. CHATE did not agree with Mr. Thomas in saying "once a corn, always a corn." He had a pony now in his possession which once had a corn, but was now quite free from it, and its foot was perfectly healthy. He, however, made it a rule to disqualify all horses, as being unsound, which suffered from corns, no matter how slight, for if bad shoeing were continued on the merest bruise a bad and troublesome corn would be the result.

Mr. COLLINGS said by removing the cause, you might remove the corn, but the tissues never quite acquire their original condition. He had stripped the sole in four cases of canker, but considered it a cruel and horrible operation. The after-treatment, too, was so long and expensive that he thought, on grounds both of humanity and economy, it was far better to save the animal from so torturing an operation by shooting him. He did not quite agree with Professor Axe's opinion as to the parasitic origin of Seedy Toe ; he should stick to his old theory that it was due to a separation of the horny fibres from concussion, until there was more proof of the disease being the work of parasites. Where there is a dropping of the sole in these cases, treatment by paring the wall is useless.

Mr. HEATH, in speaking of Laminitis, thought nothing would restore circulation quicker than walking. Bleeding from the coronets was the nearest approach to nature's own remedy for relieving the congestion, and was the means of frequently preventing exudation. He believed the disease to be very often due to a rheumatoid diathesis of the system, consequently he employed salicylic acid for its treatment with very great success. In the treatment of canker, he had seen good results from the application of nitric acid and pressure to the frog ; this, as a rule, would get rid of the fungoid growth. In reference to corns, if the bruise were slight and could be cut out by paring, he did not consider it an unsoundness, but if there was an alteration of structure of the hoof it was never restored again. For sandcracks, he was a great advocate for applying stimulating applications to the coronets, to bring about a healthy and vigorous secretion of horn. He was against the theory of parasitic origin of Seedy Toe, for the disease was confined to carriage-horses, whose feet were kept free from dirt. Parasites rarely existed where there was an absence of filth.

Mr. STEVENS said he had seen no treatment so successful for sandcrack as that adopted by Mr. South, of Bond Street, which consisted in the removal of a portion of the wall on each side of the fissure, and the introduction of a well-fitted piece of wood into the aperture, which was maintained in its place by rivets.

Mr. W. PENHALE, Jun., thought that in the earlier stages of navicular disease a cure was often effected by setoning the frog and applying blisters to the coronet, he had even resorted to firing with a great deal of success. In Laminitis, if the animal can be induced to take gentle exercise without too much coercion, he always adopted it, and that too with benefit. His plan of treatment was, in the very acute stage, to supply the feet with plenty of moisture in the shape of poultices, and as soon as the pain had disappeared to put on the Broad shoe and allow exercise. He thought the fact of Prof. Axe having found parasites in the *débris* coming from a horse's foot affected

with Seedy Toe, a strong proof in the favour of the parasitic origin of the disease. The peculiar construction of the head of the parasite also showed it was capable of destroying horny fibre.

A hearty vote of thanks was given Mr. Thomas for his valuable and instructive paper.

It was resolved to hold the next meeting in Exeter, on the second Thursday in October.

W. PENHALE, *Hon. Sec.*

ROYAL COUNTIES VETERINARY MEDICAL ASSOCIATION.

(*Continued from page* 363.)

Mr. SIMPSON (Windsor) said if he spoke in favour of the resolution it might be thought that he was somewhat selfish, and desirous of retaining a seat which, under the present rules, he could not retain after next year ; but he did not think the retention of a Fellowship degree was much business of theirs now. The thing was done, and let those who valued the honour of being Fellows by all means enjoy it. His own idea, when he was asked about a Fellowship, was first to see the company he was going to keep ; and he must say that he thought the clause, which enabled so many men to be "pitched in" as Fellows, was too wide. It let too many in ; and young men who were looking about to see how they could raise themselves in the profession did not feel that they could do so by associating themselves with many who were enjoying the Fellowship degree because they had been fifteen years in practice. (Hear, hear.) He was not speaking disparagingly of many who were Fellows, but of others who were elected simply because they had been that time in the profession. Unless the Fellowship degree gave additional status it was not worth the fifteen guineas they had to pay for it. (Hear, hear.) Of course there were so many Fellows, and there they would remain ; but he had tried to look a little further ahead even than his brother or their Treasurer, viz., to fifteen years from the start. At the present rate there would then have been not more than seventy men examined for the Fellowship degree, and not more than half would be eligible for Members of Council, or thirty-five to select from, *plus* the men who were put on because they had served fifteen years, and who would then have served at least thirty years. Could they consent to that? (No!) If they did not agitate now, they clearly must submit to that hereafter. He did not think any Fellow on the Council who had given the matter consideration could take any other view than their worthy Fellow, Mr. Lepper, had taken that day ; and he believed that if the matter was represented to the Council some steps would be taken. (Hear, hear.) Some steps must be taken to do justice to the very large majority of the profession. (Applause.) Nowadays, in imperial matters we went in for direct representation of the masses ; but their Council were going to do the very opposite, and limit their selections of men to a very few, instead of the members being able to select from the whole profession. Nine-tenths or more would be barred from being Examiners or from being Members of the Council, if the clause stood. He thought the suggestion that other associations should be communicated with a good one, because then the general feeling would be ascertained. (Hear, hear.)

Professor PRITCHARD, having been asked by the Chairman to speak, said he did not know that he could add anything to what had been said, beyond that he had always felt the clause a most cruel thing. He was on the Council Board at the time, and he was one of those fortunate individuals the law did not reach. Only that morning he was in conversation with one of the Members of the Council who was bound to retire, and advised him to take no notice of it. He really thought that this, although it was in their Charter, was beyond th

appeal to the law. He should not advise this association to fight a battle of that kind, but he thought the Act of Parliament should be repealed. (Hear, hear.) It was absurd that any rule of that kind should have been made. With a little more consideration, Mr. Simpson might have reduced the number of those eligible for seats down to about fifteen, and it was absurd that a profession like theirs, with over 2,700 members, should have a Council elected from such a small number. (Hear, hear.) He should support the resolution in every possible way he could. (Applause.)

Mr. BARFORD most heartily endorsed the resolution. He did not feel justified, after thirty years' practice, to sacrifice his time in "working up" for another examination, and he should only be too glad, as one of the Vice-Presidents for this year, if the resolution should come before the Council Board when he was present to give it his strenuous and utmost support. (Applause.) Now came in the value of the veterinary medical associations. Let them look at the constitution of the Council at the present time. Ten years ago there were probably not half-a-dozen provincial practitioners on the Board, and now there were about half-and-half; that result being due entirely to the united and strenuous efforts and co-operation of one association with the other—north, south, east, and west—to endeavour, if possible, to send the *most* distinguished members of their profession to that Council Board. (Hear, hear.) That was a matter in which he felt most strongly that every association should be invited to co-operate with them; and he believed that if the matter were put properly before the Council, some steps would be taken to remedy the present very glaring defect. (Hear, hear.)

Mr. WRAGG disagreed very much at first with another degree having been created in their profession. They would have been much better off if they had had only one examination to pass; but the Fellowship degree had been created, and he thought they ought to ask themselves, before passing that resolution, what effect it would have on the public if they asked the Council to nullify one of the clauses in the Charter? Would it do the profession any harm? He was rather inclined to think that if they showed the public they were not capable of passing that examination, which, he thought, must be a simple one, as he understood only one man had been rejected out of thirty-eight, it would do the profession some little harm with the public. He did not mean to be shut out of Council on account of that Fellowship degree, and if he could pass the examination he thought there were very few men in the profession who could not do likewise. (Laughter.)

The PRESIDENT, in summing up the debate, said he thought Mr. Kidd's resolution well worthy the consideration of every member of the profession. The injustice complained of had not, in his opinion, been done intentionally, for he had no doubt the primary idea was that the majority of members would flock in for examination for the Fellowship degree; but many of them had not been able to leave their practices in order to take up that degree. (Hear, hear.) Under the circumstances, he thought the only means of remedying the mischief was that they should communicate with each of the societies in existence in the country, and then see what steps should be taken with regard to getting the clause repealed. (Hear, hear.) It must be very gratifying to them to feel that of the four Members of the Council present that day three heartily supported the alteration proposed, while the fourth probably did not mean what he said about going up for examination. (Mr. Wragg: Yes.) Whether Mr. Wragg went up for his examination or whether he did not, they would not find a more ardent supporter of the proposal to repeal the clause. (Applause.)

The resolution was then put and carried unanimously.

Mr. SIMPSON moved, and Mr. IRVING seconded, "That the Secretary be requested to inform the other veterinary associations in the kingdom that

this association has approved the foregoing resolution, and to request their serious consideration of the subject at their next meeting," which was also unanimously agreed to.

The PRESIDENT then delivered the inaugural address, as follows :—

He began by thanking the members for the honour they had conferred upon him by electing him President of that association, a distinction of which he had the more reason to be proud, seeing that as far as actual practice was concerned, he had severed his connection with the profession. He relied on the kind assistance of all the members to make his year of office a pleasant and useful one, and trusted that when he handed the reins to his successor, the society might be in even a more prosperous condition than it was at the present time. In the autumn of 1883 it was suggested by five or six well-known members of the profession that a circular should be issued asking the opinion of leading veterinarians as to the advisableness of starting such an association. Favourable replies having been received, a meeting was called in November, and the association was established ; and it was a proof that it was appreciated by the profession that they already had forty-two members on the books, besides hon. associates, and had to their credit in the bank the sum of £33 3s. Having referred in feeling terms to the death during the year of one of their members (Mr. Ripon), Mr. Flanagan said the objects for which the association was established were, the elevation of the profession ; the promotion of a good and friendly understanding amongst its members ; the supervision and protection of professional interests ; and the discussion of scientific subjects relating to the theory and practice of veterinary medicine and surgery ; and went on to show the manner in which those objects had up to the present been carried out. At the meeting at Oxford last July, Mr. Walker read a very interesting paper on "Docking Horses, and the Abuses connected therewith"; the opinion of the meeting being that the operation should only be performed, in the interests of humanity, by properly qualified men. In November the society met at Aylesbury, when they were entertained with lavish hospitality by Mr. Lepper, and when Mr. James Simpson, of Maidenhead, read a valuable paper on "Would Government Assistance in Breeding Horses tend to encourage Horse-breeding in this country?" The subject was handled by the essayist in a careful manner, and he showed by statistics that the great want appeared to be the distribution by Government throughout the country of sound and useful stallions, for the use of small landowners and tenant farmers, at a low fee. Mr. Simpson then enumerated the systems adopted by many of the European Powers, and showed that our deficiency of horses for military purposes was a national disgrace. He thought that, with our peculiar facilities for breeding horses, it was scandalous that any Government should not be in a position to find one horse for every man in the cavalry regiments for immediate use, instead of being compelled to go into the market for supplies, even for service during the annual autumn manœuvres. (Applause.) The social feeling of the members of that association must be considerably strengthened by meeting for friendly intercourse and scientific discussion ; and he could honestly say that the renewal of old friendships with former fellow-pupils and teachers of the Royal Veterinary College would amply repay him for any time, care, or anxiety that might arise in the time he should have the honour of being their President. (Applause.) Having referred to the great improvement that had taken place in the condition of the profession during the last thirty years, he said that the improvements made should only act as stepping-stones to the further elevation of the status of the profession, in which all its members might assist, by attending to their duties with punctuality and zeal, studying in every way the interest of their employers, and doing all that science and practical skill could do to alleviate the sufferings of the animals entrusted to their care. (Applause.)

Mr. BARFORD moved a vote of thanks to the President for his very excellent address, which he was sure had been cordially appreciated by every member. (Hear, hear.) He was sure the society never took a wiser or more prudent step than when they selected Mr. Flanagan as President, and that gentleman must feel pleasure and pride in following so eminent and distinguished a man as Mr. Lepper. (Applause.)

Professor PRITCHARD seconded the resolution, observing that Mr. Flanagan, had, unfortunately for the profession, separated himself from them professionally, but he continued to regard those who were obliged to work in it with warm sympathy. (Applause.)

The vote having been carried with acclamation,

Mr. FLANAGAN thanked them most heartily for their vote, and also for putting him in the position he occupied. (Applause.)

This terminated the business of the meeting.

Afterwards, the members present and some friends enjoyed a very excellent dinner at the Great Western Hotel, the wines being supplied at the cost of the President.

H. KIDD, *Hon. Sec.*

LANCASHIRE VETERINARY MEDICAL ASSOCIATION.

QUARTERLY MEETING, HELD MONDAY, DECEMBER 29TH, 1884, AT THE BLACKFRIARS HOTEL, MANCHESTER.

Present: Peter Taylor, Esq., President, in the Chair; Professor Axe, Messrs. Thos. Greaves, Wm. Whittle, Wm. Woods, W. A. Taylor, S. Locke, Jno. Lawson, T. Hopkin, E. Faulkner, G. Morgan, J. S. Hurndall, J. W. Ingram, A. M. Michaelis, J. Marshall, Wm. Dacre, Jas. Lambert, H. Ferguson, A. New, Alexander Lawson, Jos. Abson, T. Briggs, and J. B. Wolstenholme, members. Also visitors: Messrs. J. M. Axe, Harrison, Race, MacRaith, Rimmell, and two other gentlemen.

The letters of excuse were read, also the minutes of last meeting, which were confirmed.

Messrs. James Haslam, M.R.C.V.S., Manchester, Frederick Proctor, M.R.C.V.S., Manchester, and H. Darwell, M.R.C.V.S., Bedford Leigh, were elected members of the association.

The treasurer made his annual report, and brought forward the illuminated letters of condolence to Miss Taylor and Mrs. Simpson.

The election of officers for the ensuing year then took place, with the following result:—

President: Mr. Samuel Locke, Manchester. Vice-Presidents: Messrs. P. Taylor, *ex officio*; Jas. Lambert, A.V.D.; Edwin Faulkner. Treasurer: Mr. Thos. Briggs, re-elected. Secretary: Mr. J. B. Wolstenholme, re-elected.

The removal from our number, by death, of Mr. M. J. Roberts, of Manchester, and Mr. William Leather, of Liverpool, was announced to the meeting, and received with deep sorrow. It was resolved that an illuminated letter of condolence be forwarded to their respective families, as a mark of the esteem in which we held our late friends.

Professor AXE then read the following paper on

Azoturia.

After briefly considering the history of the disease, the known conditions of its origin, and the symptoms of the affection, he said:—I now come to that part of the subject concerning which my observations and conclusions depart from those now accepted and taught by the most enlightened of English veterinarians. The pathology of the malady under consideration has been variously stated, but it was not until the publication of Professor Williams' able work on "The Principles and Practice of Veterinary Medicine,"

that any doctrine was made known which could be accepted by the profession as a reasonably reliable one. Since that time, several works on equine medicine have issued from the press, and all concur in the views enunciated by the gentleman named. That this should be so, is not strange to those who have watched the unquestioning faith and complacent satisfaction with which veterinary writers accept an easy solution of difficult pathological problems. I have stated elsewhere, that the teachings of the present in regard to this affection are based on purely theoretical grounds, and rest rather on physiological possibilities than on pathological data, and notwithstanding that objection has been taken to the statement, I venture to believe that it fairly represents our present position.

The term "Azoturia" was first employed to designate a disease of the human subject, in which the urine becomes distinctly charged with an excess of urea, both relative and absolute. The disorder is further characterised by flatulence, acidity, and general gastro-intestinal derangement, as well as considerable nervousness, premature fatigue, pain in the back, with a constant desire to micturate. The affection is of an abiding nature, and one of the essentials of treatment is a generous and nutritious diet. Now it would be idle to attempt to assimilate the disease in question with Azoturia of man, seeing that the main features of the one are entirely wanting in the other, and that the alimentary conditions to which the former has been referred are precisely those prescribed for the cure of the latter. In Azoturia of man there is no discoloration of the urine, no muscular spasm or paralysis, no asphyxia or diaphoresis, no albuminous urine—indeed, there is an entire absence of everything of preponderating importance to the assimilation of the two affections. In referring to the pathology of the disorder, Professor Williams says, "It is a hypernitrogenous condition of the blood, due to over-feeding and want of exercise. The excessive secretion of urine and excretion of urea being physiological results due to the presence of effete products, metamorphoses of nitrogenous food in the blood. It seems necessary that some degree of muscular exercise be performed, and the only way in which I can account for this, is that the blood before exercise contains a superabundant quantity of albumin unappropriated by the tissues, and that the exercise, by increasing the rapidity of the circulation and the respiratory movements, induces a rapid oxidation of such superabundant albumin, whereby it is transformed into urea, hippuric acid, etc., with which the blood becomes overloaded and the kidneys stimulated to excrete what is proving deleterious. The presence of such effete materials in the circulation provokes tonic spasm of the muscles, loss of motor power, tetanic convulsions—and death." Now this view of the pathology of the affection is clearly based on the theory that the formation of urea is increased by physical exertion, and that the *circulating albumin* undergoes direct oxidation, both of which conclusions are directly opposed to the teachings of physiology. Moreover, the statement that the phenomena exhibited during the course of the disease are the outcome of a superabundance of urea in the blood, stands confronted by overwhelming evidence to the contrary. In this connection we have the experiments of Bichat and Gaspard, Todd, Vanquelin, Frerichs, Bernard, and Barreswell, all of which concur to show that the toxic consequences once attributed to the presence of urea have no foundation in fact. But granting, for the sake of argument, that the case were otherwise, is it consistent with what is known of the formation and elimination of urea, that in the brief period of time which elapses between the commencement of physical exertion and the outbreak of the disorder, that such an amount of this compound can be formed and accumulated as to prove destructive of life in the presence of uninterrupted renal activity? To me it appears altogether unintelligible, and cannot be conceded without landing us in insuperable difficulties. Now

with regard to the superabundance of albumin in the blood, there is one fact, and one only, that lends considerable support to the conjecture, but that fact is denied both by Professor Williams and Professor Robertson. I allude now to the presence of albumin in the urine. It is well known to physiologists that the kidneys are the organs by which any marked excess of albumin is eliminated from the blood, and my experience of this disease has been to find albumin in the urine whenever I have sought for it. I am, therefore, ready to allow the possible existence of a superabundance of this element as a part of the pathological condition.

After some further remarks on the physiological aspect of the question, Professor Axe continued :—I now come to the consideration of the condition and composition of the urinary secretion. Referring to this part of the subject, Professor Williams observes : "In no instance is there blood in the urine. . . . In every case i s specific gravity is much increased—1·185 or higher. Boiled, the urine gives no reaction, except that ammoniacal gas is emitted. Tested with nitric acid it almost becomes solid, but the solidity is not due to coagulation of albumin, but to the precipitation of crystals of nitrate of urea in great abundance."

The observations of Professor Robertson are much to the same point. He says : "In density the urine is generally high. The colour has often been regarded as due to blood, or the colouring matter of blood. Examination with the microscope, however, fails to detect the existence of either entire or broken-up blood globules. The solidification which the urine undergoes on the addition of nitric acid, which has often been deemed indicative of albumin, is so far a mistake, being due evidently to the formation in excess of nitrate of urea, and the absence of albumin is further confirmed by the non-coagulation of the liquid on the application of heat. It is to the dark-coloured urea, or rather the salts of urea, that the urine in bulk owes its alteration in colour, rather than to the colouring matter of the blood." For myself, I have simply to say that my observations are wholly at variance with those of the authorities quoted. With regard to the colour of the urine, it is not a little strange that hitherto no real attempt has been made to account for its anomalous condition, and it must be obvious that no explanation of the pathology of the affection can be considered acceptable that does not afford an ample and unequivocal solution of this question. To me it appears of the highest importance to the inquiry, and will probably be found to furnish the key to a correct pathological formula. It is singularly unfortunate that the discoloration should have been referred to urea or the nitrate of urea, seeing that both these substances are quite colourless, and cannot therefore be held responsible for the change. My own observations and experiments lead me to a very definite conclusion, namely, that the morbid hue of the urinary secretion is due to the colouring matter of the blood. This conclusion has been forced upon me again and again by every appropriate chemical test, and considerable support has been given to it by the finding of iron in the urine, and I make no doubt that spectroscopic analysis will confirm the result at which I have arrived. If this be true, as I believe it to be, then we have distinct evidence of hæmal changes. Whether those changes refer to an actual solution of the red corpuscular elements, or to a morbid diffusibility of the hæmoglobin, remains to be shown. In reference to albumin, I have always found it uniformly present, but according to the analyses to which I will now ask your attention, I have no reason to regard urea as existing in material excess.

Microscopic examination does not reveal any indication of organic renal changes, but I believe I am right in the belief that the ammonium-magnesium-phosphate is increased, and the calcium-carbonate diminished. As to the specific gravity, I may say that in my experience, it has ranged from 1015 to 1035.

Analysis of Urine in Health.

Three samples of urine were taken from three mares, and yielded respectively the following proportions of urea :—

1st sample	...	...	...	...	11·9	parts	per 1000.
2nd „	...	...	...	...	12·4	„	„
3rd „	...	...	...	...	11·38	„	„

When treated with peroxide of hydrogen and tincture of guiacum, they gave no coloration, showing the absence of blood; when a small quantity of blood was added to the urine, the hydrogen peroxide and guiacum gave a distinct blue coloration.

Analysis of Urine in Azoturia.

On Wednesday, June the 13th, a portion of urine removed from a bay cart-mare suffering from "Azoturia," was submitted for analysis.

Physical Characters.—Colour in bulk, chocolate brown ; viewed in a test tube, bright red, transparent, somewhat thicker than water ; a small amount of granular matter visible in suspension. Specific gravity 1015. To test paper, it gave a distinctly alkaline reaction. On the addition of nitric acid, there was no effervescence. On being heated, a flocculent precipitate of albumin was thrown down. A portion of the urine was taken and tested by the guiacum test previously employed for the healthy urine, when a beautiful blue coloration was produced, indicating the presence of blood. A portion of blood from the same animal afforded the same reaction.

The total solids were equal to 30·36 parts per thousand, and were of a bright red hue, due to the presence of the colouring matter of the blood, and were estimated, according to Neubauer's process, "Zeitschrift für Analatische Chemie," ii., p. 166. The urea was estimated by Russell and West's process.

The ash or total saline matter was found to be equal to 4·61 parts per thousand.

The ash contained a very large amount of iron, probably derived from the constituents of the blood.

The ammonia was estimated by Shlösing's method, and found to be equal to ·0039453 parts of urea per thousand.

Proportion of chief constituents in 1000 *parts.*

Water...	969·64
Urea	11·59
Ash	4·61
Hippuric acid, extractives, blood, and other matters	14·16
	1000·00

Professor AXE concluded by saying that the Manchester and other kindred societies possess the means and the power to do great and lasting good, both to themselves and to science, and he urged the desirability of organising a research fund for the purpose of settling questions of an intricate nature, whereas, in the present case, such divergent views were held by members of the profession on matters of pathological interest and importance. He hoped the President would use his powerful influence to bring about this much-needed and laudable help to the advancement of comparative medicine.

Messrs. PETER TAYLOR, THOS. GREAVES, T. HOPKIN, JAS. LAMBERT, JOHN LAWSON, GEO. MORGAN, JOS. ABSON, W. DACRE, J. S. HURNDALL, and WM. WOODS spoke on the subject; then the Professor replied, and the discussion ended by giving the essayist a hearty vote of thanks.

ANNUAL MEETING, HELD FRIDAY, FEBRUARY 13th, 1885, AT THE GROSVENOR HOTEL, MANCHESTER.

Present:—Samuel Locke, Esq., President, in the Chair; also Professor Williams, Messrs. Peter Taylor, Thos. Greaves, Richard Roberts, Alexander Lawson, W. A. Taylor, Wm. Broughton, Jos. S. Carter, E. Faulkner, J. S. Hurndall, J. W. T. Moore, E. Kitchen, T. Hopkin, Jno. Lawson, Thos. Briggs, H. Ferguson, J. D. Allman, J. Bunnell, A. H. Darwell, R. Herbert, T. E. Horrocks, A. M. Michaelis, Dr. Priestly, Dr. Wood, Messrs. J. B. Taylor, J. W. Ingram, J. B. Polding, and J. B. Wolstenholme.

Letters of excuse were received from Sir F. Fitzwygram, M.P., Dr. Fleming, Professors McCall, Walley, Axe, and Robertson, also forty-eight other friends.

It was resolved that P. Taylor, Esq., Manchester, be our candidate for a seat in Council R.C.V.S., as he retires this year by rotation, and a hearty vote of thanks was accorded him for his services to the Society and profession during his term of office.

The PRESIDENT then read the following inaugural address, to which Mr. GREAVES spoke, and concluded by moving, "That our best thanks be given the President for the good practical sentiments of his address." This was seconded by Mr. PETER TAYLOR, who referred to the ability, energy, and perseverance of our respected head, and the resolution was carried unanimously.

President's Inaugural Address.

Gentlemen,—My first duty in assuming the presidential chair is to thank the members of the Lancashire Veterinary Medical Association for the honour they have done me in unanimously electing me to so dignified a position, and to assure you that no effort on my part shall be wanting in furthering the interests of this old and influential Association, and of the profession to which we have the honour to belong.

It was with great diffidence on my part that I accepted the post, feeling that I was not competent. As you are all aware I have not that gift of speech, nor the happy knack of placing my words, or of explaining my ideas, which come so naturally to a great number of members present, and which is very essential in a person aspiring to such a post. I, therefore, crave your indulgent assistance and support, by regular attendance at the meetings, and by joining heartily in the ordinary business of the Society, and in the discussion of subjects brought forward, and I hope at the expiration of my year of office, that I may retire with a full conviction that this Society has not in any way deteriorated, and that I have given you satisfaction.

I am very sorry to hear that the Principal Veterinary Surgeon to the Army, Dr. Fleming, is suffering from a severe mental shock. I feel sure you will all heartily join with me in wishing him a complete and speedy return to his usual vigorous health.

This Association is now in its twenty-fourth year, and is one of, if not the oldest of its kind. In looking over the list of members some twenty years ago, we find the names of veterans who have done a good deal in raising the status of the profession in Manchester and Lancashire, viz., Lawsons, Haycock, Taylors, Greaves, Howell, Woods, and a number of others; and it speaks volumes for this Society when we can say that all those that it hath pleased God to spare are still members, some of whom I see around this table to-night. Long may they be spared to further their good work, to help the younger branches with their presence and support, ever ready to give freely of that store of practical knowledge which time alone can give.

The Society has passed through many vicissitudes, had many trials; hard and strong words have been hurled at times by one professional brother against another; but thanks to the judicious management and

work of its officers, and those deeply concerned in the Society, these clouds have all blown away, and none being the worse for a free and open discussion of subjects which, when kept to ourselves, very often rankle deeply in our hearts and engender strife, and by so doing tend to weaken any society and cause its downfall. I would, therefore, advise those who have, or fancy they have, any cause to make him feel offended, injured, or alarmed, by any word or action of a brother practitioner, to bring his case before his veterinary brethren assembled at these meetings, and let them judge between the two, and I feel sure the advice given would be sound, and no doubt the matter would, ere the meeting close, be amicably settled.

The elder members of our society are still expected to uphold the dignity and the status of the profession; the eyes of the public, and we who are interested, are upon them. Whatever they do, either professionally or otherwise, ought to be straightforward and honourable, always having in mind that great virtue, charity, especially with regard to the younger members. Remember, we all have to live, and it is a much harder struggle in the present age to gain a position and a competent living than it was twenty years ago. Therefore never fail to give a helping hand when the opportunity occurs.

To the younger members I would say: Be diligent, be moderate in all things; endeavour to be in the right place when wanted; and when cases are entrusted to you, give them all the care and attention they deserve; by so doing, you will gain the respect and confidence of your employer, and in time success is sure to crown your efforts.

Our society is strong in numbers, but still there are a good many in the suburbs of Manchester that I would like to see at these meetings; then again we have a fair number of members who attend very badly, perhaps give us a look up at the annual meeting, and ignore the business one. This ought not to be. Why this apathy? Of course I am now alluding to those members who live within easy distance of our place of meeting.

The penal Act, or, legally speaking, the Veterinary Surgeons Act, 1881, has now become firmly established, and, like all other great measures of progress and reform, it produces for a time an amount of evil consequences, that permanent good may ensue. Many of the registered practitioners are men with their wits about them, and they use their newly-acquired rights in many cases to the detriment of the duly-qualified practitioner; but it was quite time that such an Act was passed, as it seems before the penal Act of 1881 we duly-qualified veterinary surgeons, by charter, had not the exclusive right of calling ourselves veterinary surgeons, as there was no law to prevent any one adopting the title. The Royal College of Veterinary Surgeons is now recognised and legalized by Act of Parliament, and brought into direct communication with the Government, and this is of very great advantage.

While on this subject, gentlemen, I would draw your attention to the answer given by the editor of THE VETERINARY JOURNAL, to a question made by "Justitia" in the January number of this year. The question is as follows: Is a registered practitioner justified in calling himself a "Veterinary Surgeon" in a witness-box in a court of law? The answer is: The law does not prevent a registered (existing) practitioner calling himself a veterinary surgeon. This does not coincide with my idea of the reading of the Act, and ought not to go before the public without question.

Clause XVI. of the Act says: "If after the passing of this Act any person not being a fellow or a member of the Royal College of Veterinary Surgeons, takes or uses any name, title, addition or description, by means of initials or letters placed after his name, or otherwise stating or implying that he is a fellow or a member of the Royal College of Veterinary Surgeons, he shall be liable to a fine not exceeding £20." Now, I take it, by the reading of this clause

that neither an existing practitioner, nor anybody else, can legally call himself, either in or out of court, a veterinary surgeon..

As you are all aware, the National Veterinary Association held a most successful meeting last year in the Victoria University in this city ; we felt it to be an honour that Manchester should be the place selected in which the Society held its second meeting, and the Lancashire Veterinary Association felt the more pleased as this Society furnished the President for that year, in our friend and colleague, Mr. Thomas Greaves The Association seems to be now firmly established, due in a great measure at first to the perseverance of Dr. Fleming and several other gentlemen, with the cordial support of the various Veterinary Medical Associations. I hope its meetings will always be a success, and receive the support of every member of the profession. Its course of proceedings are on the same lines as the British Medical Association, and it is an evidence that our profession is endeavouring to improve its position.

I am pleased to hear that at last we are to have a building in London, as our head-quarters, worthy of the profession. Some £8,000 is to be spent in erecting new offices, etc., on the site of the old premises in Red Lion-square, and when finished, our members of Council will have that convenience accorded them which is only their due. What could be more derogatory to any profession, to have been all these years compelled to meet in such a place as the late building, and it savours very much of an insult to members of Council, after electing them, to allow them to pay their own expenses, and send them to deliberate and legislate for us in such a place. I am sure the expense the Royal College of Veterinary Surgeons will be put to in the above endeavours will greatly cripple them in a financial point of view for some years. It is a great pity that the Government cannot see their way to help us in some manner. I feel sure the influential deputation that waited upon Earl Spencer, K.G., to urge our claims upon the Government, pleaded our cause with the very best ability. No doubt it may bear fruit, especially when they see we are endeavouring to improve and help ourselves.

The great and burning question of the day, I mean with regard to veterinary politics, is the examination of the student. You all know full well that a large percentage have been lately rejected, especially for their final. Now, gentlemen, what is the cause? There must be some reason. We hear of principals of colleges and professors speaking in not very complimentary terms of the Examiners, that they demand too high a standard of proficiency, too extensive a knowledge of each particular science, etc., etc. With all due deference to the opinion of the professors, I do not think this can be so. No doubt the examinations are more stringent than they were some eight or ten years ago ; but we are all supposed to be advancing, both in education and scientific attainments, the student especially ; has he not every facility given him at college to attain that standard which is expected of him ? and we have it on good authority, that the students of the present day are well up, and at least equal to the candidates for medical degrees ; and if found to be so at their examination, surely they will have justice done them, and get such marks that would ensure their passing. This is so, and is borne out by the fact that a very large percentage pass the first and second examination, which is principally theoretical.

I think the remarks made in the introductory lectures at two of our Scotch Colleges, at the opening of the present session, to be very injudicious ; they could do no possible good, but liable to produce a great deal of harm, as they would no doubt bias the minds of a great many of the students against the Examiners. The Council board was the place for the professors to have brought forward their grievance ; they are members of that body, and could easily have done so. I feel sure the Examiners as a body conscientiously

endeavour to do their duty, both to the student, the profession, and to the public. Of course they are but human, and may at times err; but who of us is perfect?

There is no doubt, from what we read and hear on all sides, and even see with our own eyes, the generality of students of the present day are lacking in that very essential portion of their profession, viz., practical knowledge. The Council of the Royal College of Veterinary Surgeons are alive to this fact, and the examiners are determined that the students shall possess a fair practical examination before receiving their diploma; and we, as a body, ought to support them in their laudable undertaking.

And now, gentlemen, allow me to thank you for your kind and patient hearing to my few and disjointed remarks on the subjects of the day, hoping I have given offence to no one, as none was intended.

The members and friends afterwards dined together, and a most enjoyable evening was spent. JNO. B. WOLSTENHOLME, *Hon. Secretary.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

(*Continued from p.* 349.)

ABORTION IN COWS.

The PRESIDENT said:—We will now turn our attention to one of the most important subjects touching our domesticated animals. We have had our flocks and herds decimated by different infectious diseases, but I think that abortion is causing more harm and more loss to agriculturists and, indirectly, to the consumer than any other. That being so, I hope we shall have a good discussion on the paper that Professor Williams is to read to us.

Professor WILLIAMS, who was received with applause, said:— I do not propose to read a paper to you on this subject. I simply wish to make a few remarks introductory to a discussion on this very important matter. First of all, I have divided the subject into three heads, and I will deal with it entirely as it occurs in cattle. I shall make no reference to ewes. In the first place I have to deal with abortion from accidental causes; and it may occur from any accident, such as a fall, a blow, or any interference with the animal. The excitement of fear often induces it. I will tell you an experience of my own in regard to abortion. I bought a cow for the students, and they endeavoured to discover whether she was in calf or not. They exercised so much violence in their investigation that the cow slipped her calf during the next night. You have also the influence of fear, which is a very prolific source of abortion. Then, of course, such diseases as Foot-and-mouth Disease, Tuberculosis, Diarrhœa, or any medicine or disease that acts violently on the bowels, will induce abortion. Purgatives by stimulating peristaltic action excite a contractile action of the uterus, and abortion may ensue. When once even an accidental abortion has taken place in a herd of cattle, what may be called an epidemic of abortion may set in, and one after another, perhaps the majority, or all the cattle in the place will abort. The question here is, How does this come about? Roloff, Haubner, Bouley, Franck, and other Continental observers are of opinion that a micro-organism similar to *Leptothrix Buccalis*, or that found in the mucous membrane of the mouth, is found in the discharge from the vagina. This, they believe, increases towards the parturient period, becomes very numerous in the discharges from the vagina of the cow as she approaches parturition, becomes infective and spreads the contagion. This organism is always found on the membrane of the vulva, and is supposed to induce decomposition of the fœtal membranes. By smearing the vagina of a pregnant cow with the dis-

charges of an aborted cow, or expelled fœtal membranes, abortion has been induced by Roloff, and he is of opinion that he has ascertained that it is induced by something which finds its way to the uterus through the vagina, and that infective matters are found on the articles soiled by an aborted cow, as well as in litter. He also believes that he has found that the accident always occurs in byres where the drain is small, and where there is insufficient fall for the excreta, and where the hind quarters of the cattle are readily soiled. The fœtal membranes are generally retained for a time ; and some maintain that the putrefactive products evolved from their decomposition cause abortion, and believe this to be due to the entrance of these into the vagina. Others think that the infection is conveyed through the air into the lungs and thus infects the cattle. I am of opinion, gentlemen, that this view of the matter held by the Continental veterinaries is defective, because if there were a micro-organism operating, as they believe, on the fœtal membranes, these would be found dead and decomposed at the period of abortion. But you are aware that the fœtal membranes are, as a rule, not decomposed ; are retained, and generally expelled only when they have undergone decomposition, and that there is a smell from these fœtal membranes. I will not assert that the entrance of organisms, arising from this decomposition, into the fœtal membranes of another animal may not induce the abortion of a cow which has been in contact with an aborted cow ; but in the great majority of cows, the fœtus is dead, and undergoing putrefaction before being expelled, and that, before expulsion, we find that the fœtal membranes are retained for a considerable time. If the entrance of the organism through the vagina on to the fœtal membranes of the pregnant animal were the cause of abortion, we should certainly find the fœtal membranes in a state of decomposition or degeneration before the cow had aborted, and that the death of the fœtus would be due to the degeneration of the fœtal membranes, the fœtus itself coming away, not dead, as is generally the case now, but either very lately dead or altogether alive. This fact, therefore, forces us to the conclusion that when an exceptional abortion occurs, it may—in fact, it becomes—infective, by what would be looked upon as being the sympathetic influence of the smell arising from the decomposing fœtal membranes and discharges from the vagina. The very fact that there is an animal in the throes of labour in the byre excites the sympathy of the surrounding animals; and if, in addition to this sympathetic feeling, we have a smell from these fœtal membranes, the blood of the pregnant animals becomes altered, and, as a consequence, the calves die. A very little matter is sufficient to induce the death of the fœtus. Koch has proved that it is not necessary to have an organism to destroy life. By creating a stink—if I may so term it—by making beef tea, and exposing it to the ordinary atmosphere for four or five weeks, and using it for the purpose of inoculation, destroying life without producing an organism in the body of the animal, by applying it in the ordinary method of inoculation. Death in such cases is considered to be due to the peculiar poison, Sepsin, which is perfectly independent of the micro-organisms contained in the beef tea. The inhalation of putrid matter by cows in cohabitation with an aborted cow, is sufficient to induce such an alteration in the blood of that animal as even to cause death to the fœtus. I cannot, therefore, accept this theory of the entrance of a micro-organism into the vagina of a pregnant animal through the vulva as a cause of abortion, or as being the cause of the spread of the disease. I look upon the spread of abortion as a result of an influence upon imagination, or upon the blood by smell. In proof of this, I know of a case in which abortion occurs to the cows of a nobleman in the south of Scotland. This has occurred only since he built some kennels for his fox-hounds near the byres. The smell of the meat, etc., from the kennels, has had this effect. Prior to the kennels being built, abortion among the cows

was not known, but since, a great majority of this nobleman's cattle abort every year. The next cause of abortion to which I shall refer is high feeding and want of exercise. This, undoubtedly, induces abortion The influence of high feeding on the digestive apparatus is to cause it to become disordered, and then, there ensues a malcondition of the blood, and in the majority of these cases the blood of the animals is found to be altered in its constitution and aplastic. Animals stimulated with a high diet, and never or scarcely ever having any exercise, have also in some degree a plethoric condition of the uterus, or congestions leading to slight extravasations between the maternal surface and fœtal membranes. The fœtal membranes then become detached, and begin to degenerate. Again, the detachment of the fœtal membranes from the mother will cause a loss of nutritious supply to the fœtus. There is an insufficient quantity of blood sent to the fœtus, and, as a consequence of this lack of blood supply, the fœtus dies, and abortion is induced. We know that in the human female abortion is looked upon very often as being due to fatty degeneration of the fœtal membranes, owing to imperfect, insufficient, or improper supply of blood. I am of opinion that high feeding of cattle, inducing a plethoric condition of the mucous membranes of the uterus, and by bringing about the detachment of the fœtal membranes, causes abortion. In the second place, when the blood is aplastic, it contains too few of the elements which gives it plasticity, and, as a result, the fœtal membranes, as well as the fœtus itself, suffers from an insufficient or improper supply of blood, and there is a tendency to abortion. I would now call your attention to the effects of the use of ergotised food. This matter should be carefully investigated. I may also state that many compound cakes as made now-a-days are very impure. You will find, if you mix a certain quantity of cake in a little warm water, that in the course of a *minute or two*, it is swarming with micro-organisms. The bad condition of the blood of cows, no doubt, is in many cases brought about by the entrance of these organisms into the system. A remarkable fact in connection with this matter was revealed in New Zealand, where, until 1875, abortion was unknown. In that year, however, rye grass being introduced, and it becoming ergotised, abortion became prevalent, and there was tremendous loss in consequence all over the colony. It is also well worth considering what influence such food as frosted turnips has upon the animal. During wet or damp seasons, too, abortion is much more prevalent than during dry ones, and those interested should endeavour to investigate this subject. There is another thing which some of you may look upon as an absurdity, but which I regard as one of the influences that induce abortion. We find, particularly in cows that are very highly fed, that they suffer from irritation of the throat, arising, most probably, from a condition of indigestion which causes a long powerful cough, a cough which sometimes causes expulsion of fœces and urine. In some of these cases, where there is this condition of the blood, that very act of coughing may be sufficient to detach some of the fœtal membranes, and thus be one of the causes of abortion.

In conclusion, gentlemen, we are reminded, first, that abortion occurs from an accident. Accidental abortion will occur, no matter how careful we may be. When such a case has happened in a byre, although arising from a mere accident, that abortion once established may be sufficient to spread through the whole, or the great majority of the cows in the byre. Next we have abortion caused by infection or sympathetic influence; and, thirdly, abortion caused by the effects of improper food and water. I have drawn your attention to these causes of abortion in the hope that you may investigate them, and take measures to prevent as far as possible the prevalence of abortion in the North of England.

The PRESIDENT then invited discussion upon the subject.

Mr. CLEMENT STEPHENSON (Newcastle) said :—The subject we have before us to-day is one of national, I may, I think, say universal importance; it is one that hitherto has received little or no special attention, and as a natural consequence is to a considerable extent shrouded in mystery. As most of you know, I am a breeder of pedigree cattle. Like other breeders, I have had some experience of abortion in my herd. I have had isolated cases, and one season the whole of my cows aborted, and as a consequence my attention has been particularly drawn to the subject. There is not, that I am aware of, any reliable work that can be consulted upon it; but breeders and herdsmen have all, to some extent, settled opinions regarding it, and knowing that abortion was extremely prevalent in certain districts in Scotland, it was with the view of getting the subject ventilated and investigated that I addressed my first notes to the *Aberdeen Free Press*; and I am delighted to find that it is now likely to receive the attention which it deserves. In taking a general view of this subject, we must remember that all domesticated cattle are kept more or less in an artificial, therefore unnatural condition—a condition which favours both functional and structural changes. They are necessarily kept in, and surrounded by conditions far removed from natural. They are fed with artificial stimulating foods; even the grass and hay they consume is in many cases produced by stimulating chemical compounds. They are often short of air space, and the air is often impure, and loaded with exhalations from drains, manure, and other decomposing material; while as to water, any stream, pond, or pump, however polluted, and whatever its source, is thought by some to be good enough for cattle. I admit that in many herds great attention is paid to cleanliness, ventilation, and pure water, but to these important factors there is also needed a close adherence to the laws of nature. Occasional isolated cases of abortion are of themselves of little importance, it is the serious results of which they are only the forerunner that most occupies the attention of breeders. These isolated cases may be due to many causes; some to be traced clearly, others beyond tracing. Accidents, sudden excitement, cows bulling upon each other, railway journeys, indigestion, an irregular state of the bowels, and certain diseases, are amongst common causes. Occasionally, as in my own herd, a number of cows or even the whole of the pregnant animals in a herd will abort within a few days of each other, due to one common cause; in my case it was drinking water impregnated with sewage. Tuberculosis is a primary cause. This may be objected to by some, and I admit that tubercular cows do unfortunately often go on breeding for years; but my experience is, that once the uterus or its appendages becomes implicated, the animal becomes a confirmed buller. On the other hand, if it is the kidneys or peritoneum that is affected, then the animal only comes in use at irregular and long intervals. When abortion becomes frequent in a herd or locality, and is not due to one common cause, it is, in my opinion, due to sympathetic action set up by unhealthy uterine discharges. We all know how sensitive the sympathies of animals are, how easily and quickly they are excited; and that the sympathies are stimulated by certain smells there can be no doubt. In the lower animals the organ of smell is developed to a degree of acuteness that only a close observer can form an approximate idea. With them smelling does the work of hands and voice. See how carefully and inquisitively a new companion, a fresh herdsman, a stranger, some alteration to their box or field, their food, or some object they have not seen before, is felt and smelt at until their curiosity is satisfied. That the uterine discharges of animals have some special scent only recognisable by members of their own species is evident. Every one has observed with what keenness a herd of cattle will smell and follow one of their companions when œstrum is about to come on, while when it is fully developed the whole herd becomes completely demoralised.

If, then, the natural, healthy uterine secretion produces for a given time so much effect, is it not natural to believe that the unclean discharges following abortion, or its consequences, must have a more or less corresponding effect, especially upon pregant animals? That special contagious and fatal diseases are caused by uterine discharges is well known. As examples of this I need only name Puerperal Fever, and the disease known as straining in ewes. Of abortion due to ergotised grass or hay I have no personal experience; but knowing the medicinal properties of ergot, it is natural to believe that under certain circumstances it does produce abortion. Still, I confess that if ergot is the frequent cause that it is said by many to be, I fail to understand how it is that in the well-known disease of ergotism abortion is not the first and leading symptom. In Quain's Dictionary of Medicine, 1882, under the heading ergotism, the writer, Dr. J. Mitchell Bruce, after describing the nature and symptoms of the disease, which are of a very serious character, and have been regularly and exclusively traced to the use of articles of food made from rye-meal contaminated with ergot, says, "abortion does not appear to be of frequent occurrence." In the report issued by the United States Agricultural Department, 1884, there is a very full report of an extensive outbreak of ergotism. The disease was at first thought to be Foot-and-mouth Disease, and caused great excitement in the country, hundreds of animals were affected, most of them lost their feet, several lost half a leg, and some part of their tail. Notwithstanding the frightful character of this disease, the only notice of abortion is this, that in seven herds within a radius of four miles six abortions were reported; and again it is reported as a matter of great interest connected with the subject, that there had been a great number of abortions amongst mares, and more cases of difficult parturition than was ever known before. Whilst I am quoting from American authorities, I will direct your attention to the 1883 report of their agricultural department. On page 63, I find the following report supplied by D. E. Salmon, D.V., under the heading, "Prevention of the *enzootic* abortion of dairy cows." He says: "This disease, which evidently depends upon some form of contagion for its causation, has been estimated to produce an annual loss in the States of New York alone of several millions of dollars. At present the affection is widely distributed over the country, and if the estimates in regard to New York were not greatly exaggerated the annual loss from this source must be equal to or greater than from any other disease. The dairymen have settled down to the conclusion that nothing can be done to check this scourge, and they dislike so much to have its presence in their dairies known that the public hears little in regard to it. If, as seems likely from our general knowledge of the contagia, the germs of this disease are first scattered upon the stable floors and upon the grounds where the cattle run, to be taken into the system by soiled food, by the dust which rises and floats in the air, or in some similar way, then a thorough and continuous disinfection of the stables and runs should have a very marked effect in controlling it. In one rather large and plainly infected herd I put this idea into practice with the happiest results—the disinfectant being a one per cent. solution of sulphuric acid. It is very desirable that this trouble should be thoroughly investigated, with a view of revealing its cause, and the best disinfectants that are applicable as its treatment. There certainly is no disease of our domesticated animals in which the probabilities are better for valuable practical results." You will observe that this writer adopts the germ theory exclusively. I cannot follow him in this. I believe that what is known as septic, or putrefactive germs, play their part in this disease as in many others; but that is as far as I can go at present, and I have yet to learn that abortion is due to a special and distinct germ. In a letter to the *Aberdeen Free Press*, on February 19th, upon this subject, Mr. J. Hunter, V.S.,

of Skene, says :—"I recommend that all cows, even in the natural act of calving, should have a separate loose box. The peculiar, sensitive, sympathetic, imitative temperament of many cows must be quite apparent to every observant practitioner. Besides, many a cow, other than the mother, falls in love with the newly-dropped infant calf, and commences lowing and twisting about in such a fashion as at times brings on premature labour. A facsimile of the powerful influence of mere imitation may be seen in the human subject in yawning and in certain other ways." Now, knowing as we do that cows when at liberty isolate themselves and hide their calves for a certain time, Mr. Hunter's remarks are worthy of attention. Since they appeared I have made inquiries, and have heard of one case where premature birth was brought on evidently by the calving of another cow. There is another point I wish to bring before you, namely, to what extent may a bull be blamable for abortion. I have heard of cases in which a number of cows and heifers have broken service after being settled in calf to some particular bull, going say eight, nine, or ten weeks and no longer, and in which the bull was clearly traced to be at fault. Great damage is often caused in a herd by allowing a bull to serve cows or heifers that are not in a natural, healthy, breeding condition. Animals in which œstrum is irregular, or that have the slightest unnatural discharge from the uterus or vagina, should never be served. Service so intensifies the diseased condition that it may prevent the animal ever breeding again. The bull, too, is seriously injured, and becomes a direct medium of spreading the disease to the other cows he is put to. Cows, after abortion, come quickly in use ; but they must not be served. Miss them twice or thrice, and only serve them when they are perfectly clean and regular. All that I have said respecting the cleanliness of the cow is equally applicable to the bull, and must be attended to. Be sure the bull is clean and healthy, and do not use him except to cows that are in a natural, healthy, breeding condition. If it is desirable to try doubtful breeders, do not use the stock bull, but some young and less valuable animal. I will now, as briefly as possible, indicate my opinion as to the best means of combating this disease. Our breeding animals should be kept in as near a state of natural life as possible ; pure air, pure water, wholesome food apportioned and varied, according to the bodily condition of the animals, and the breeding state they are in. Exercise is most important, and, if possible, should be allowed every day, even in winter. Cleanliness, both in the byres, folds, and fields, is all important. A sharp look-out must be kept for decomposing, putrid, or other offending matter, which must be effectually destroyed. There should be a free and continuous use of disinfectants. Everything must be carried out on the antiseptic principle. Should a case of abortion occur—and it may, under the best arrangements—remove and isolate the cow as perfectly as possible from her fellows ; destroy the aborted calf, membranes, and discharges as quickly as possible. Disinfect and keep on disinfecting the place where the abortion took place, and the cow herself in her seclusion. Have the air saturated with the disinfectant. In the absence of recognised disinfectants, use lime freely. I use *Sanitas*, and with good results. Never serve an animal unless she is all right. Keep all doubtful breeders, bullers, and those from which there is the slightest unnatural uterine discharge isolated, well away from regular breeders, and if they are not likely to soon get right, quit them at once. They are dangerous animals to hold. Do not serve too soon after calving ; it is better to miss them the first time. I have endeavoured to treat this subject from the farmer and breeder's point of view, leaving the scientific, physiological portion of it in the able hands of my friend, Professor Williams. There are other important questions, part and parcel of the subject, which require consideration, namely, those important diseases of the uterus and vagina,

known and classed by the sister profession under the head of gynœcology, and which I hope will be brought before us at some of our future meetings.

Mr. HENRY HUNTER (Newcastle) said he thought they would all be pretty well agreed—he was himself convinced—that they need not seek for any specific germ as the cause of abortion. He quite agreed with Professor Williams and Mr. Stephenson when these referred to effects of smell of decayed membranes and of excitement as quite sufficient to account for it.

Mr. MCGREGOR (Bedlington) said that he thought that Tuberculosis was a likely cause of abortion. He had had a good deal of experience in these matters. In one byre of which he knew, twenty or thirty cows—or about three-fourths of the stock—aborted for two or three years in succession. They were all served by the same bull, and it was supposed that the cause was the quality of water from pits supplied to them. The water, as far as he could see, was not bad. The few calves that came to maturity proved to be tubercular. The bull was dispensed with, and after that some of the cows that were left were served by a new bull, and did not abort. It was proved afterwards, on a *post-mortem* examination, that the first bull had Tuberculosis. It was a highly-bred shorthorn bull.

The PRESIDENT said :—I reside in the town, and seldom come across these cases. It strikes me, however, very forcibly, that in all these outbreaks of abortion that the cause should, if possible, be found out. We ought, in all these cases, to have the affected animals removed, as far as possible, from the other stock ; and we ought also to have the fœtus, and all the fœtal membranes, carried away and buried, in some place out of the way of any watercourse, and out of the reach of anything likely to be contaminated. Another thing to be done is to remove the herdsman. There is no doubt that these men, by working among the cattle, their clothes become contaminated with the fœtal discharges, and so spread the mischief to healthy cows. I would suggest that the men should be put under the same restrictions as were issued recently by the Veterinary Department of the Privy Council with regard to the Contagious Diseases (Animals) Act. I think that we, as practical veterinary surgeons, should see when outbreaks of abortion take place, that all these precautions are attended to. As a rule, we find that most men are very careless with regard to seeing that our orders are carried out. In one case of abortion that came under my notice last year, I was surprised to find that they had taken the aborted calf out of the field, and put it into the centre of the manure heap beside the onstead. If the calf had been allowed to remain there, it might have been a source of a great deal of evil I had the fœtus exhumed and buried, the place strewed with quicklime and disinfectants, and no other case followed. As I have said, I have had very little experience with regard to this important subject ; but I am sure there are many country practitioners here who may be able to give us some important information with regard to the prevention of abortion.

Mr. DUDGEON (Sunderland) said he had not seen any of these outbreaks of abortion, but he felt indebted to Professor Williams for addressing them on the subject. They all knew how ready that gentleman was to respond to the invitations of societies. He had also to thank Mr. Stephenson for the plain and practical remarks he had made on the matter. He thought there was a very great deal in what Professor Williams had said as to the food of the animals. As to Mr. Stephenson's suggestion, that all animals nearing parturition should be put in a box by themselves, it was, in many cases, impossible to do it. There must be some cause of abortion outbreaks, beyond the influence of sympathy, through the sets of parturition taking place in the same byre, because they knew that there must be thousands of byres where the cows were allowed to calve regularly, and where no case of

abortion occurred. There was often the exciting cause, but no case of abortion as the result. Of course they knew that smells and other things excited animals under those conditions. There must be something very peculiar in the condition of an animal which causes it to abort. He thought that when the matter was thoroughly investigated, it would be found that the feeding of the animals—especially with artificial cakes and ergotised food—had a great deal to do with outbreaks of abortion.

Mr. PEELE (Durham) had with much pleasure and instruction listened to the able addresses of Professor Williams and his friend Mr. C. Stephenson. In his practice he had met with cases of abortion. He remembered one case of *enzootic* abortion, where the disease had been going on for a considerable time. The animals were constantly slipping their calves. He immediately ordered them to be isolated and the place thoroughly disinfected, and saw that attention was paid to the sanitary condition of the byre. By these measures the outbreak was checked. If the owner had taken the proper measures at first, he would have lost no more than the first calf. He generally found that where they had cases of abortion from accident or traceable cause, they rarely had a case of *enzootic* abortion, and that where they had the *enzootic* form, it was impossible to fix upon the cause. The best treatment was isolation, to use disinfectants, give attention to drainage and ventilation, alterative medicines, and, if possible, to let the cows rest for some time after slipping the calf. When a cow slipped once, she was liable to do so again. He was consulted on one occasion about a remarkable case where they could never get a cow to "hold the bulling." It was a very good cow. He advised that she should be given three or four successive periods of rest. This was done, and she was all right afterwards.

Mr. SMART (Newcastle) said he saw many cases of abortion in animals brought from abroad. In some cargoes as many as five or six aborted their calves. The exciting cause often was the knocking about they got on the voyage, but in the majority of cases the predisposing cause was Tuberculosis. The majority were old animals which were, undoubtedly, affected with Tuberculosis, and tubercular matter was discharged from the uterus. The President had made a remark that struck him as a useful hint, and that was as to the isolation of the men in charge of those animals. The animals that aborted were removed from the Sanitorium, and put into the open market, and if abortion was, as some of the speakers believed, contagious, there was a very fruitful source of abortion in those animals which had recently aborted being brought into contact with pregnant animals.

Professor WILLIAMS said:—Since you asked me to prepare the few remarks I have already made, I have met several parties interested in Highland cattle. Abortion, they said, was seldom or never heard of amongst the cattle living in a state of nature. Artificial feeding and surroundings have as much to do with it as anything else. I may also mention that Tuberculosis is a rife source of abortion. The influence of the sire upon the offspring is also mentioned by various parties. If the sire is a healthy animal, generally speaking, they say the parturient period goes on all right. But I can well understand, and especially in Tuberculosis with a tainted sire, the progeny would also be tainted. I have no doubt, as Mr. Smart has stated, we have Tuberculosis not only in this country, but that we get it from abroad. The hints that he has thrown out should cause some agitation as to the importation to our shores of Tuberculosis. We have plenty of it amongst our own cattle, without getting more of it from abroad; and if the thing could be stopped, it would be a very great blessing. The remarks I have made are imperfect, and were hastily put together. If they will throw any light on the matter at all, and cause men to reflect and then to endeavour to find out the cause of this very mischievous disease—as it may be called—I shall be very

well rewarded. A proper investigation ought to be made into the subject by experts. It is all very well to discuss the matter, but to get at the very root of it a man ought to be engaged by the Government, or some agricultural association, to go fully into it and inquire into the circumstances of every outbreak in every county. Such a man, with the aid of the microscope and chemical agents, and with the help of a selected assistant to carry out these investigations, would be able to throw a light upon the matter that would be worth millions of money. We are discussing it more or less in the dark. The official he had suggested could investigate into the causes of *enzootic* abortion, whether arising from the food, from sympathy, or whether the result of some mysterious disease, such as Tuberculosis. We also know that the fœtus is subject to the same diseases as animals of a mature age. Some suffer from one disease, and some from another, neither having any connection with the condition of the cow ; but in all cases *post-mortem* examinations should be made. I think the question is a very important one, and I think that you, Mr. President, and the Society, are very much to be thanked for having brought the matter prominently before the public and the profession.

Mr. BORTHWICK (Kirkliston, N.B.) said he thought the principal causes of abortion in cows were improper feeding and lack of exercise.

Mr. C. STEPHENSON said he had to thank Professor Williams for the very valuable information he had given them. He thought that if another argument was needed to prove that the question required investigation, it was that meeting. It was evident that very little was known about it. He was sorry they had not some breeders and herdsmen there that day, as he believed that much valuable practical information would have been obtained from them. He did hope that the profession would now devote some attention to it, for it was far from creditable to us that an important subject like this should have been left so long, comparatively speaking, neglected. He moved a vote of thanks to Professor Williams for his address.

Mr. MCGREGOR seconded the vote of thanks, which was carried by acclamation.

Professor WILLIAMS returned thanks for the vote.

On the motion of Mr. DUDGEON, seconded by Mr. MULVEY, a vote of thanks was passed to the visitors for their attendance.

THE ANNUAL DINNER.

Mr. Elphick occupied the chair, and after dinner proposed the loyal toasts, and "The Army, Navy, and Volunteers," and the latter toast was responded to by Dr. LUKE ARMSTRONG, Dr. WICKS, and Mr. G. FARROW.

Mr. W. J. MULVEY proposed the "Royal College of Veterinary Surgeons." He condemned the clause in the charter of the college which prescribed that after next year the council and examiners should be elected from among only the Fellows of the college, and urged the necesssity of having the clause altered so that others might be elected members of the council.

Professor WILLIAMS responded, and expressed himself in favour of the council of the college being made more representative. He felt sure they were upon the point of a new charter dealing with the question of representation and fellowship.

Mr. CLEMENT STEPHENSON proposed the toast of "The Sister Profession." He showed how the two professions were connected with each other, and said he hoped that in a short time a new Medical College would be erected in Newcastle ; and that college would not be complete unless the veterinary profession was represented in it. No college of medicine would be complete that had not a chair specially devoted to the study and investigation of

diseases that were common to the lower animals and man, and that were communicable one to another. He referred to the danger arising from milk and meat from animals suffering from tubercular disease. He spoke of the diseased animals and sheep which were sold in Newcastle market to be consumed by the people, and said these were matters which ought to be attended to at once. It was years since he brought before certain members of the medical profession in Newcastle the necessity of having a chair in the Medical College for the study of these matters, and he went so far as to say he would gather and guarantee funds for a chair to be devoted to the study of diseases common to man and animals ; when the proper time came, he would do all he could to raise the necessary funds.

Dr. LUKE ARMSTRONG responded, and expressed the hope that Mr. Stephenson's desire of founding a new chair at the College of Medicine would be carried out.

Professor WILLIAMS proposed the toast of "The North of England Veterinary Medical Association." He promised to give his heartiest support to the establishment of a school of veterinary medicine in Newcastle.

The PRESIDENT responded, and, in the course of his speech, referred to many of the topics mentioned in his inaugural address.

Other toasts were afterwards proposed and responded to, and a very enjoyable evening was spent.

COLIN GRESTY, *Hon. Sec.*

NORFOLK AND EASTERN COUNTIES VETERINARY MEDICAL ASSOCIATION.

THE fifteenth half-yearly meeting of the above society was held on May the 1st at the Norfolk Hotel, Norwich, the President, G. A. Banham, Esq., F.R.C.V.S., Cambridge, in the chair. There were present :—Professor Walley, Edinburgh ; Messrs. Santy and Slipper, Norwich ; T. Auger, Wymondham ; J. Hammond, Bale ; J. K. Gooch, Holt ; J. D. Overed, Blofield ; R. S. Barcham, Paston, hon. sec. After the preliminary business, the President read a highly interesting inaugural address, dealing with the main veterinary politics of the day—the question of the Fellowship Degree, with reference to the Council of the Royal College of Veterinary Surgeons eliciting an animated discussion. Professor Walley, Principal of Dick's R.V.C., Edinburgh, then read a valuable and very instructive paper on "Neurose of uncertain origin, Megrims and Epilepsy, Chorea and Immobilité," treating of each in concise and pleasing terms. The subjects being thoroughly discussed, a cordial vote of thanks was conveyed to the essayist by Mr. Santy, in which he referred to the great pleasure it was to all to have listened to such an able paper, and the honour felt in having such a distinguished member of the profession amongst them. A similar compliment having been paid to the worthy President, the meeting terminated.

LIVERPOOL VETERINARY MEDICAL ASSOCIATION.

(*Continued from p.* 355.)

4th. *Economy in Consumption of Food.*—This forms one of the most important factors in my argument, and to the calculating man must be a subject of intense interest, for here the money-making faculty may find ample scope for development. The immense loss occasioned by the ordinary system of grazing, one would have thought, was apparent to the most obtuse mind, and that any means of avoiding same would have been embraced gladly ; but no, ever and anon we either hear or read of prospects for

enlarging the area of permanent pasture as the sovereign remedy for all the recent losses incurred by agriculturists. It is in some respects more than surprising to me that men like Mr. James Howard, of Bedford, should not be able to work out a method of obviating such loss, even supposing that the soiling system had never been heard of; but I believe I am correct in saying that he, and many others holding equally prominent positions in the agricultural world, go on advocating for more and more permanent pasture. Such advice will never help the farmer to meet his difficulties, for many reasons, some of which will be apparent to you in the succeeding remarks. Now what are the facts regarding grazing? You have, say, in the month of May, a nice piece of closely grown grass—rented at from three to five pounds sterling per acre, and if near a town, probably seven or eight pounds—so far advanced in growth that in another three weeks it will be fit for the scythe; into this you turn a number of cows or fatting oxen; the first thing they do is to walk all over it and trample it down; had this same thing been done a week before by some unfortunate boys, you would in all probability have visited upon their sacred heads or bodies some condign punishment; in a very few days the field will be covered over with patches of dung, the animals will of course have staled proportionately often, and the result is that in some places the grass is eaten quite bare, in others it is rank and coarse, so much so, indeed, that neither these bovines nor any other class of animals will consume it; in addition to this, the grass is further rendered unpalatable in consequence of the animals breathing and lying upon it, and it becomes a very open question whether or not a far larger proportion of this costly herbage is not spoiled and rendered useless than is available for feeding. If these reasons are not in themselves sufficient to place an everlasting ban upon grazing, it is difficult to conceive what would be, and only the absence of a better and more economical method could justify the continuance of such a bad system; but to return to our argument. Having utilised as much meadow grass in the green condition as can be spared, the remainder is cut for hay; the aftermath should then be fed off by sheep that are receiving either corn or oil-cake. In this manner the close cropping of the second growth is ensured, the whole of the pasture will be equally and thoroughly manured, at the best time of the year for this purpose, improvement of the land is assured, and the best return made available for a description of land that is generally the most expensive property to rent. In order to meet one's requirements for the dairy stock in the spring, an early sown crop of vetches is relied upon, to be followed by a second sowing about three weeks thereafter; from each of these two cuttings may be obtained—provided of course that the liquid manure cart is made use of, and the land is in fair heart; these provisions apply to all the crops hereafter referred to. These vetches would then be followed by lucerne, sainfoin, and clover; the former of which will produce at least three cuttings during the season, and clover certainly two crops. In this way a considerable weight of grass is obtained; in the case of lucerne, as much as eight tons per acre; sainfoin five tons; and clover, three to four; and the whole of the produce will be consumed, none wasted, as is the case where animals have to collect their own food. Allowing that cows will drop some out of their ceils and trample it under foot, the consumption of the whole may be rendered certain by numbering among the stock some useful store pigs. Compare the before-mentioned weight of croppings with what is produced on the best meadow land in England; then, after allowing for the waste already spoken of, the larger rental paid for grazing land as compared with that paid for ordinary quality arable land, such as would grow heavy crops of these artificial grasses, add these items together and strike a balance, after allowing for the increased cost of labour, and the result of the calculation will fairly astound the prac-

tical man! There will be no hesitation in frankly admitting that therein is economy in very deed!—economy that will make a probable difference of 150 per cent. in the returns, and that on the credit side of the account; economy that produces not only heavier and more valuable crops, but that necessitates a method of cultivation that will improve the quality of the land in a very marked manner; economy that advances the interests of tenant, landlord, and the general public; economy that will result in a vastly increased production, and which would conduce in a substantial manner to the development of national wealth.

5th. *Great Saving of Land.*—In order to draw a sufficiently striking comparison between the advantage under this head, it becomes necessary to remind you that according to ordinary calculations it takes about two and a half acres of grass land, or an equivalent thereto, to keep a shorthorn cow or ox the year round, that is, taking land of average quality. It is upon some such basis as this that a farmer would calculate how many head of cattle he would require to stock his farm if about to rent a new occupation. I shall now proceed to show you by figures worked out in detail, that instead of requiring two and a half acres per head, somewhere about half an acre only, or less, is requisite to maintain each head of cattle on the "soiling" system; this, no doubt, will appear at first sight a rather staggering statement, for what does it mean when reduced to practice? Nothing less than this, that where one bullock is kept according to the prevalent custom of management, four or five according to the circumstances may be maintained. Every one who knows anything at all about the management of neat stock, will admit that for every twenty-four hours, one hundred pounds' weight of green food, such as clover, sainfoin, or lucerne, would constitute a very fair average allowance; this being granted, I will proceed to explain how to produce such a daily quantum the year through. For the sake of illustration, we will assume that half an acre or eighty rods of land is apportioned as follows:

Mangel-wurtzel	15	rods
Swede Turnips or Carrots	15	„
Potatoes	20	„
Cabbage	15	„
Lucerne or Sainfoin	15	„
Total	80	„

Prior to sowing the mangel-wurtzel, an early crop of vetches drilled the latter end of August, or as soon after, say, an oat or barley crop had been harvested and the land could subsequently thereto be manured and ploughed, would be cut once, yielding at a moderate estimate a crop of 100 pounds per rod = 1,500 lbs.

A similar crop of vetches, sown perhaps a month later than the former, preceding turnips or potatoes. = 3,500 lbs.

The fifteen rods set in cabbage, allowing 144 plants to a rod, weighing on an average 3 lbs. each. = 6,840 lbs.

The fifteen rods of lucerne, putting the produce down at the low estimate of 200 lbs. per rod = 3,000 lbs.

The leaves of the mangel-wurtzel picked from time to time, during the month of October, estimated at 300 lbs. per rod = 4,500 lbs.

Total 19,340 lbs.

This represents the weight of the green food only which would be utilised during the 185 days of late spring, summer, and early autumn. Allowing 100 pounds' weight per diem for each animal, it will be seen that there remains a surplus of 840 lbs. on this portion of the produce. The remainder of the crops grown upon the said eighty rods of land consists of the mangel-wurtzel roots, carrots, or turnips, and potatoes. The weight of produce of the mangel-wurtzel roots is estimated at thirty-five tons per acre, which according to the experience of those who buy seed of Sutton's of Reading, and Carter's of London, is considered moderate; at this calculation the produce of fifteen rods of mangel would amount to . . = 7,840 lbs.
The Swede turnips or carrots, estimated at twenty-five tons per acre . . . . . = 5,600 lbs.
Twenty rods of potatoes are estimated to produce 120 lbs. to the rod, or eight and a half tons per acre, and . . = 2,400 lbs.

Total . . . 15,840 lbs.

Allowing seventy-five lbs. of roots per diem for each cow during 180 days of late autumn, winter, and early spring, 13,500 lbs. would be required, which leaves a surplus of 2,340 lbs.; this surplus produce would in all probability be potatoes, which being a saleable crop, might be sold to purchase hay and corn or hay and straw, required as the complement of the winter's keep. The surplus of potatoes amounting to one ton three quarters and sixteen pounds, would be badly sold if they did not realise seven pounds sterling in an average year. The present must not be taken as a fair specimen of what potatoes generally yield per acre, for I have no doubt the average far exceeds this quantity; but as it is proposed to show that a daily allowance of seven lbs. of hay and seven lbs. of oat-straw, cut into chaff, are sufficient with the seventy-five lbs. of roots to supply an amount of nutriment equal to 100 lbs. of grass, it will be seen that the value of this estimated surplus is more than enough to find the required quantity of dry provender. In order that a fair comparison may be drawn between the respective values of the nutritious elements contained in the 100 lbs. daily allowance of artificial grasses, and the eighty-nine lbs. combined weight of roots, and hay, and straw, or other dry food, resort must be had to chemical analysis. Take, for exampie, lucerne as the standard among the grasses; its composition is as follows, viz.:—

Water	73·41
Flesh-forming substance	4·40
Heat and fat-producing matter	19·11
Ash	3·08
	100·00

The composition of roots, hay, and straw will now be placed side by side, that the constituent elements may the better be observed and compared. They are as follows, viz.:—

	Oat Straw.	Meadow Hay.	Swedish Turnips.	Mangel.
Water	12·06	14·61	89·460	87·78
Flesh-forming constituents . .	1·63	8·44	1·443	1·54
Heat and fat-producing substances .	37·86	43·63	5·932	6·10
Woody fibre (indigestible). . .	43·60	27·16	2·542	2·50
Inorganic matter (ash) . . .	4·85	6·16	·623	·96
	100·00	100·00	100·000	100·00

It will be observed that the quantity of water in the roots is very large, something like nine-tenths of the whole; it is also worthy of special attention that the indigestible constituents and the inorganic matter are very much smaller proportionately than in the hay and straw, which contain a comparatively considerable excess of flesh-forming and heat and fat-producing substances. Again, compare the quantity of flesh-forming and heat and fat-producing substances contained collectively in the roots, hay and straw, with the same elements in the lucerne, and it will be evident that the 89 pounds' weight of the former food materials really contain more albumenoid and fat-producing elements than the 100 pounds' weight of artificial grass; but this is as it ought to be when we take into account that the animals require in the winter, during the period of low temperatures, food containing a larger proportion of heat-producing materials. Please to note that I have not made any comparison between the chemical constituents of carrots and cabbages, both of which are richer by far than those mentioned in my calculations, but which, if gone into, would furnish evidence favourable to my argument.

I have thus shown that the produce of half an acre of land, medium quality, is sufficient for raising enough to keep a cow for one year; which proof is confirmatory of the text of this fifth paragraph, wherein it is affirmed that on the soiling system great saving in land is effected.

6th. *Waste in land now occupied by fences dispensed with.*—This must be apparent, for where animals are kept constantly in yards and artificial enclosures, the great proportion of natural fences serve little or no purpose; certainly a considerable number might with advantage be rooted up; the result would be to reduce the annual expenditure involved for keeping same in repair; to increase the acreage of cultivated ground, and that without addition to existing rent; to do away with one very fruitful harbour of refuge for rabbits and other destructive vermin; to foster the full maturation of considerable areas of crops that now remain stunted and only partially ripened, in consequence of their close proximity to trees and thick thorn hedges, through which the sun's rays cannot penetrate.

7th. *Increase in the quantity and improvement in the quality of manure.*—The proposition that the quantity of the manure is increased must be self-evident, from the fact that the soiling system enables the stock owner to keep a larger head of cattle; but this is not all; when the cows are turned into pastures to graze, the dung is frequently deposited under trees, from the simple reason that the animals congregate wherever there is a shady spot; or if not here, they are huddled together in a pond, where they seek to cool themselves by standing in water up to their flanks, into which the fæces are dropped and the urine passed, and both are completely lost for manurial purposes, simply serving to render impure the liquid intended for drinking. Moreover, that portion of the solid excrement which is deposited on the land is very unevenly distributed, as may be observed by the tufts of coarse grass that spring up where the droppings have been allowed to remain for any length of time. Where cattle are kept in a yard, provided with a suitable paving, not the smallest quantity of excrement, either solid or liquid, need be lost; the whole is retained among the litter, and there subjected to the process of putrefaction necessary if it is to be used as a fertilizing agent. The chemical constituents of fresh and rotten farm-yard manure are pretty much the same; the principal difference being that in the rotten manure, or such as has undergone fermentation, there is a larger proportion of soluble material. Now, it is well understood that fertilizing substances to answer the objects of their application must become soluble in water; and to render them soluble, a change has to be effected by fermentation, because prior to this

process the proportion of insoluble material exceeds considerably the soluble matter; by way of illustration, take the general composition of fresh long dung in the natural state; it is as follows, viz. :—

Water	66.17
Soluble organic matter	2·48
Soluble inorganic matter	1·54
Insoluble organic matter	25·76
Insoluble inorganic matter	4·05
	100 00

Here, be it observed, the available soluble organic matter is only about two and a half parts in a hundred, whereas the insoluble organic matter, which in its present condition is perfectly useless for reception into the organization of plants, or to promote their growth, represents rather more than twenty-five and three quarter parts in one hundred; this proves beyond question the prime necessity of subjecting animal excrement to the process of fermentation, and if that is to be effected so as to retain the valuable products of decomposition, it must be conducted under circumstances favourable to the process; one important condition being that the incipient decay shall take place in such a manner as to prevent as much as possible the escape of ammoniacal gases liberated during fermentation. Nothing will conduce so much to the successful realisation of this object as the thorough distribution of both solid and liquid excrement among a porous vegetable mass, such as straw, which effectually prevents the evaporation of volatile gases, if left undisturbed. When, however, the droppings are exposed to the influence of air and moisture, as is the case when they lie unprotected as deposited in the fields, putrefaction proceeds, but the ammonia, being a peculiarly volatile gas, rapidly passes off, and the most valuable constituent of the manure is lost. This remark applies very forcibly to the liquid excrement, as urine contains a larger proportion of these fertilizing constituents than do the fæces. The ordinary system of preparing manure in open yards, subsequently carting it out to the road-side, where it is turned and re-turned, can only be considered as wasteful and objectionable in the extreme, while the evidence advanced in favour of suitable protection seems overpowering and unanswerable.

8th. *Value of produce increased.*—One of the principal sources of economy in the "soiling system" is the considerable increase in the weight of cropping obtained; for instance, a clover crop may be mown three times, even during a dry summer, provided the land is kept clean, was previously well manured, and liberal use is made of the liquid manure cart.

Sainfoin is a plant of great hardiness, especially adapted for cultivation on these light soils resting on porous limestone rocks; it contains an abundant proportion of flesh-forming matter, and is very rich in heat and fat producing substances; it is little affected by dry seasons, and only attains to greater luxuriance should wet weather prevail; the land needs to be well cleaned and deeply ploughed before sowing, and each season it should have a top dressing of well-rotted farm manure, gypsum, or soot; but as the duration of this plant is generally estimated at six or seven years, it cannot be other than an inexpensive crop: the produce of three cuttings during the season is probably not less than five tons per acre.

In all my calculations of the weight of produce per acre, I take the same at what the produce would be if made into hay, in which case the proportion

of flesh-forming matters and heat and fat-producing substances, as compared with water, is much larger, for in grasses the water amounts to between 70 and 80 parts in a hundred, whereas in hay it does not exceed fifteen or sixteen parts per cent.

Lucerne, again, is one of the most productive and profitable crops that can be grown ; it is ready for the scythe about the end of April, and if properly treated will be fit to cut a second time in the course of six weeks ; and with the regular application of liquid manure after each cutting, is capable of undergoing the same operation at similar intervals during the summer.

Certainly four crops may be looked for, the produce at each cutting averaging two tons per acre. Lucerne is the richest in flesh-forming matters and heat and fat producing substances of all the artificial grasses; it contains less water than any, but exceeds all in inorganic matters, yellow clover coming next in order in this respect. This plant will last as many years as sainfoin, but requires a more loamy and richer soil for full development, or an equivalent in manure ; the land should neither be wet nor too heavy.

By way of keeping the land clean, lucerne should be drilled with the rows sufficiently far apart to allow of the use of a small horse hoe, which should be used in the autumn, prior to the application of the annual top dressing, and in the early spring subjected to a good harrowing and rolling. Of the clovers recommended for the soiling system, none succeeds better than the prolific and nutritious trifolium, and next thereto in value is ordinary cow-grass.

In addition to the usual root crops, great attention should be devoted to the cultivation of carrots and parsnips ; both are expensive productions, but they more than amply repay their cost, and are alike eminently suited for dairy cows and fattening oxen ; to obtain large crops there must be a considerable depth of rich mould ; soils of an intermediate character between clay and gravel are best suited for these plants, namely, such as are friable, loamy, or sandy. In cabbage the stock owner has one of the most fruitful of crops, especially where the soil is too heavy for growing turnips or carrots to advantage ; there are several varieties, capable of withstanding the severity of our winters, that may be raised with the greatest success on almost any clay soil; by maintaining a regular series of sowings during the months of February, May, and July or August, a succession of crops may be sustained, and the round of cabbage husbandry preserved. Where the land is strong, and the variety of cabbage large, the plants may be set out at a distance of three feet each way, thus allowing ample room for the use of the horse hoe both in the longitudinal and cross directions.

Cabbages are richer in oil and nitrogenous matter than any other green food, and are most valuable for milch cows, as they increase both quantity and quality of milk without affecting the flavour unpleasantly. The composition of cabbage is as follows, viz. : water, 86·28 ; nitrogenized substances, 4·75 ; non-nitrogenized matters, such as woody fibre, fatty and respiratory substances, 7·10 ; inorganic matters (ash), 1·87. The crop is a very prolific one, and though somewhat exhausting to the soil—a defect which is easily rectified—is particularly remunerative, and well deserves the position here assigned to it in proof of the vastly enhanced value of land produce where the soiling system is conducted.

The 9th and last clause demanding consideration is, *Protection afforded to Stock against "Disease and Parasitic Invasion."*—Exposure is one of the most fruitful causes of disease among neat stock. Alternately subjected to the influence of the scorching rays of the summer sun and the relentless downpour of heavy thunder showers, the keen blast of the east and north-east winds, permeated by frost, following immediately upon a mild and damp

atmosphere, normal perspiration checked and natural functions materially disturbed thereby, it is a marvel that a much larger number are not cut down with acute inflammation of various organs, which as a natural sequence would prove fatal long before professional aid was dreamt of ; but the neglect of all comfort, if not resulting in absolute and immediate loss, is deservedly followed by suspension in improvement and the entire want, for a lengthened period, of thriving condition. Inflammation of the liver, particularly in high-bred animals, is prevalent in hot weather, when subjected to exposure and frequent changes of temperature. Dysentery often follows exposure to wet and cold, and marks out as its victims high-bred animals in whose strain there is a taint of Scrofula.

Diarrhœa may quite as frequently be traced to exposure as to improper dieting, and cold is a very fruitful cause of it, inasmuch as an extra amount of pressure is thrown upon the lungs, kidneys, and bowels by the arrestment of the excretory function of the skin. To these may be added Rheumatism, Red Water, Milk Fever, and Congestion of the Lungs, as diseases frequently traceable to exposure during sudden alterations of the weather. Prevention is always better than cure, and the best way to obviate the dire results that are so often due to exposure, is to provide suitable shelter—shelter alike from the overpowering heat of the sun, the soaking rains, the keen winds, and the cold, biting, frosty night air, with the addition of a comfortable, dry bed to rest upon in the place of the sodden earth. On the other hand, stall-feeding, which is the opposite extreme so far as the animals' luxurious comfort and warmth are concerned, has its objections, inasmuch as total absence of exercise, where animals are constantly tied up in stalls or shippens, as in this and other cities, predisposes to febrile diseases, and imperfectly ventilated sheds to diseases of low type by lessening constitutional vigour.

There are various insidious maladies, which owners of stock are in the greater proportion of instances unable to render any satisfactory account of, due to the presence of what the unscientific designate "*worms*," which infest the bodies of the higher animals, that are not at all appreciated as they should be, when one calls to mind the terrible havoc they make ; to some of these it is now proposed to direct attention, for it is impossible to estimate too highly the value of a general acquaintance with the subject of helminthology. A very large number of the internal parasites pass through at least two stages in the course of their development, namely, the larval and the adult forms ; sometimes the larval or immature condition is passed in one of the higher forms of animals ; for instance, gid hydatids, or cænuri, are larval parasites found in the brain of the sheep or ox, and, I believe, sometimes in the muscles of rabbits ; if a dog should partake of either of these, by no means an uncommon occurrence, the larval parasite he swallows develops in the dog's body, into, it may be, a colony of tape-worms, scientifically known as tænia cænurus, a single hydatid frequently displaying quite a number of heads, each of which is capable of developing into a tape-worm. The dog now acts as the host to the sexually mature tape-worm, and at every act of defæcation distributes the ova of the adult parasite, which may either be deposited in a pond of water, or be conveyed thither on the feet of animals going thereto to drink, and either then or at some future time may be swallowed by an ox or cow sent thither to slake his or her thirst, and the seed is sown for a further crop of hydatids. Of course, if such ox or cow had been supplied with pure water in troughs placed in a yard, and they had not been allowed to drink of the pond water, the eggs of the tape-worm could not have been swallowed, and all future dire results therefrom would be avoided. Again, there are larval forms of entozoa that take up their abode in the bodies of very minute molluscs, and others, it is supposed, in the common earth-worm. Dr. Cobbold and Professor Leuckart have each made

numerous and distinct experiments that now place these, which were formerly mere theories, well within the region of facts. And here we have a very forcible argument against grazing, for these minute molluscs and earth-worms find their way about the pastures, and are then and there taken up by the stock, or, as in the case of earth-worms, leave the larvæ to be taken up into another host. Certainly it is not unreasonable to suppose that these minute molluscs may thus be swallowed with the food, inasmuch as their habitat is upon the blades of grass, though it may reasonably be objected that there is not much fear of an ox swallowing an earth-worm.

In his larger memoir, Dr. Cobbold gives a very clear account of the various life phases of the liver-fluke, which happens to be one of those parasites that during the course of development gains access to the body of an intermediary bearer; and we learn from this source that "the progeny of this redia consists of armed cercariœ, which after a time quit the nurse to pass an independent existence in the water."

Under such circumstances cattle may, and do, become infested with the larval forms of the various descriptions of flukes when drinking from ponds and stagnant pools; for Dr. Cobbold states in his smaller work as follows, viz. :—"It is probably not necessary that the pond snails themselves should be swallowed, seeing that the free swimming cercariæ appear to be able to complete their fluke development without passing through the encysted pupal stage within the bodies of their intermediary bearers"—this negative evidence in support of my former statement that ruminants are exposed to the risk of being infested by swallowing minute snails with their fodder; but there is positive evidence of this statement in Dr. Cobbold's larger work, wherein he asserts: "In the cases of some species of fluke there is reason to believe that before the cercariæ gain access to their final or definitive host, they re-enter the bodies of the molluscs; in this new situation they develop into the so-called pupa, which is at length passively transferred with the fodder or drink to the digestive organs of the host."

It will thus be seen that cattle are exposed to two sources from whence they may become infested with these immature helminths, the free swimming cercariæ in the ponds and stagnant pools, and the molluscs which may be found either on the reeds growing in ponds or upon the blades of grass in the pasture; but in either case, when once an entry is gained into the body of the ruminant, a new phase in the existence of the larvæ is rapidly acquired, and a sexually mature entozoon is the result; it is true that the fasciola hepatica is not often found in cattle, but, on the authority of Dr. Cobbold, I learn that the distoma lanceolatum infests the liver ducts of cattle, and that "still more common and widespread amongst ruminants is the amphistoma conicum occupying the paunch." This last-named parasite requires a practical eye to discern it, even when present in considerable numbers, inasmuch as it is hidden among the leaf-like papulæ of the mucous membrane lining the rumen. Many practical breeders and stock owners not unfrequently indulge in scornful expressions of incredulity when informed of the presence of parasites among their stock, and appear to question the evil results of parasitic invasion; but such reception of scientific truth is only a lamentable evidence of ignorance, and whatever loss accrues therefrom is well deserved.

Grasses such as clover, lucerne, and sainfoin, do not appear to furnish a congenial resting-place for the minute vagrant molluscs before referred to; hence, while there would still be some risk of placing these little creatures before stock, when meadow grass is cut and fed on the soiling system, the risk is reduced to a minimum, because the chief reliance is to be placed upon artificial grasses, and the greater proportion of the meadow grass would be made into hay.

There is one other description of parasite that is specially destructive and injurious to its bearers, found among oxen ; I refer to the strongylus micrurus, which is productive of that form of parasitic bronchitis known as husk.

Dr. Cobbold gives it as his opinion, based upon experiments he conducted in 1875, "that the larvæ of this parasite are passively transferred to the digestive organs of earth-worms." Be this as it may, there seems good reason to believe that the larval forms of these minute round parasites are taken up by animals when drinking from stagnant water, which serves as another strong point in favour of the adoption of a more considerable management where bovine stock is concerned.

Having thus explained the results and advantages realisable under the "soiling system," I will bring this tedious argument to a conclusion ; a great deal more might be added respecting the precise details of carrying out the principles of the system; this, however, does not come within the limits of this paper.

I have endeavoured to show that under this system far larger profits may be realised than is ordinarily the case ; that the dairy may be made a source of remunerative investment for capital ; also, that the system is sound from a health standpoint, both as regards cattle and consumer. I am myself convinced of the truth of the arguments I have advanced, and I can only hope that you may be also, and that you will, as opportunities arise, seek to diffuse these ideas among your respective constituencies.

By your forbearance, I should like to explain that as this system affords means of keeping a far larger number of cows in proportion to the acreage under cultivation than the ordinary system of farming allows, and that whereas the imports into this country of butter and cheese amounts to a very considerable sum per annum—something like twenty-five millions of pounds sterling, I believe—there is a splendid opportunity for developing a remunerative trade in this direction. I have shown that a market exists, and how it may be supplied. Farther, the new system of ensilage, which is gradually becoming more and more popular, is specially applicable where artificial grasses are cultivated, and would add materially to the profitable carrying out of the system I have had the pleasure of submitting for your consideration to-night. I am quite aware that before such a system as I have indicated could be generally adopted over the length and breadth of the country, dairymen and farmers must of necessity have better security for the investment of capital than they now possess ; as a rule the relations between landlord and tenant require the most thorough overhauling and revision ; still, there are in the country a great number of agriculturists who are either cultivating their own property or hold the same on sufficiently satisfactory leaseholds to warrant a practical test, and so furnish evidence of a general character for the benefit of the greater community of tenants, by the time that the land laws have undergone the change for the better that is in my judgment imminent, and the necessary protection for the investment of capital will be assured.

A very interesting discussion followed, in which nearly all the members present took part.

EDWARD KITCHIN, *Hon. Secretary.*

THE WEST OF SCOTLAND VETERINARY MEDICAL ASSOCIATION.

(*Continued from p.* 359.)

"I give here the essential passages of the article by Bernard:—

"RECORD OF THE MARES SERVED IN 1826 BY M. F.'S STALLION.

Villages and hamlets in which the disease reigned.		Proprietors of mares covered, and of animals suffering.	Mares covered.	Total.		Observations.
				Suffering.	Dead.	
Vieux Montier.	On the hill.	C	1	10	9	1st Inv. The mare covered was the second in the stable; dead.
	In the hollow.	L	2	3	1	2nd Inv. The disease commenced by the mares served, one of which died.
		P	1	2	1	,, The disease commenced by the mare served; dead.
		P	1	0	0	She had been affected in 1825.
		L	1	5	5	1st Inv. The disease commenced by the mare served, and it was also by her that the disease commenced in the country; she died.
	On the hill.	A	1	5	4	,, The disease commenced by the mare covered, which had previously been weak for some-time; she died.
		D	1	3	3	,, The disease commenced by the mare covered; she died.
		L	4	4	—	,, Affected after covering. They survived, and were again covered by the same stallion. There was no return of the disease.
Saint-Martin-Choquet.	On the hill.	M	1	4	4	,, The disease commenced by the mare covered; dead.
	In the hollow.	L	2	—	—	,, Were not affected. They had suffered in 1825.
		L	1	1	1	,, Affected after service; she died.
		C	6	8	2	,, Six having survived, were covered by this stallion after their recovery; no return of the disease.
Lottinghem. All the stables are in the hollow.		L	2	—	—	,, She had been affected in 1825.
		L	7	—	—	,, Idem.
		M	5	—	—	,, Idem.
		P	1	—	—	,, She had not been ill in 1825.
		S M	3	—	—	,, Idem.
		9	2	—	—	,, Idem.
		M	1	1	—	,, She was only slightly ill after covering.
		D	2	2	—	2nd Inv. Affected after service; recovered.
Guesques et Verval.	On the hill.	9	1	4	4	1st Inv. The disease commenced in the mare covered by this stallion. Another mare was covered several days before by another stallion, but only fell ill some days after her.
	In the hollow.	M	7	—	—	,, They were affected in 1825.
		B	2	3	1	,, The disease commenced by the mares covered; one of them died.
		R	2	0	0	,, They had not been affected in 1825.
		I	2	2	—	,, Ill after service, but only slightly affected.
		F	2	3	2	,, One of the mares covered only became affected; she died.
		C	1	1	—	,, Affected after service, recovered; she had been affected in 1825.
		I	5	—	—	,, They had been affected in 1825.
		G	1	1	—	,, She was slightly affected after service.

Résumé of Table.

"Sixty-eight mares were served in 1826 by M. F.'s stallion, twenty-four of which became ill after service; one only among these had been ill in 1825; eleven died. Of thirty-eight other mares covered by this stallion which had not been affected, twenty-four had the disease in 1825; and the last six covered after their recovery, had no relapse.

"The total affected was sixty-two. Thirty-seven died, almost all of which inhabited the hill or just the foot of it, where the nourishment differed but little from that at the top.

"At the same time as M. F.'s stallion did his service, the Messrs. D. H. and S., at Saint-Martin-Choquet, submitted their mares to the service of the stallion of M. F. The Messrs. P. and S., at Vieux Montier, and G. S. and B., at Tottinghem, put theirs to the stallion of M. L., and none of these were affected.

"These three stallions enjoyed good health, M. F.'s being even particularly remarkable for his qualities and vigour. I had occasion to see him several times during the reign of that terrible disease, and found him always the same. In several districts within a short distance of those which I have indicated, an analogous disease, but less fatal, manifested itself at the same time; but it had not been remarked that the service of any stallion particularly contributed to its development.

"In 1825, in several districts close to Licques, a burgh of that neighbourhood, the disease showed itself frequently a few days after the service of a stallion of M. C.'s.

"That stallion travelled the same districts in 1826, when his service had no unhappy results. In conclusion, in 1827, my colleague and friend, M. Meillon, veterinary surgeon, in the neighbourhood of Valenciennes, observed a disease pretty much the same in his district. This is what he wrote me on the subject:—

"'In a letter the 9th of July last (M. Meillon's letter is dated May 3rd, 1827) you inform me that a very disastrous disease reigned in the neighbourhood of Boulogne-sur-Mer, and appeared generally to have originated in the horses, in which it existed as the result of the service of a stallion of the districts to one or several of the mares inhabiting them. An affection almost the same, but less fatal, manifested itself this year in several of the districts surrounding Valenciennes, and was accompanied by a circumstance absolutely the same as that which you cite.

"'Three stallions of the depôt of Abbeville were placed with me during the service season. The services performed by "Ancus," one of them, were, in each farm in which the mares were covered, the origin, or rather the source, of the disease of which I have been speaking, and the mares covered by him have been always the first affected.

"'The disease afterwards affected successfully nearly the whole of the other animals on these farms; the foals and the asses even in some have not been exempt; whilst nothing of the kind has taken place as the result of the service of the other two stallions.

"'Of 200 animals of the horse species, divided over fourteen farms, ninety-four have been affected. The loss has been trifling. In each of the farms the disease manifested itself from two to five days after the service of "Ancus."'

"I thought that it would be interesting to bring together these documents with those furnished by M. Deglaire, who, of course, will always have the merit of having drawn attention to the until now unknown mode of contagion of Typhoid Fever. I say unknown, for the article of Bernard had been for many years completely forgotten.

"As to the manner in which the disease propagates itself following the

service, I know no more than M. Trasbot. Is it caused by the stallion, his leader, or the portable materials, hobbles, side-line, etc.? I do not know.

"The conclusions are put to the meeting and adopted."

Now gentlemen, I find from the notice calling the meeting, that I should terminate here, the above being the translation of the report and discussion. However, I would crave the indulgence of you, Mr. Chairman, and fellow members, for a short time to some remarks which I would like to offer as the result of my own observation. The first point, it appears to me, that requires to be decided is, What is Typhoid Fever? Well, gentlemen, for the French generally, Typhoid Fever is what is described by Professor Robertson as Influenza, with its varying features, or what Professor Williams describes under the several heads of Influenza, Epizoötic Cellulitis, Epizoötic Pleuro-pneumonia, etc. That the features of the disease, in its different forms, or different diseases, as each may view the subject, are clearly, carefully, and concisely exposed by each of the above writers all will admit; and to differ with them, if even only in degree, may seem to you, as it does indeed to myself, presumptive. The object, however, in reunions like the present, I take it, is the free expression of our ideas; so that they may be discussed, and where wrong, by the interchange of opinions, rectified. Weak, therefore, as my ideas may be, I submit them to you in the hope that the handling you will give them will be to our mutual benefit.

For a long time now I have felt that our notions of some of the contagious diseases of the horse are ill-defined, and that there is room for a distinction between the diseases described under the name of Influenza.

Recent pathological investigation has traced the contagion of many of our communicable diseases to a definite something, capable not only of direct communicability, but of innumerable modes of indirect transmission from animal to animal.

The actual contagion—the micro-organisms, the active factors in the diseases in which scientists have been able to isolate and examine them—are each one special to each disease. No matter through what different media they may be passed, they have each ever been found capable of producing one disease only, or a modification of that disease. Now, the so-called modifications of Influenza stand widely apart. First, we have what has been—and I think ought to be—called Epizoötic Catarrhal Fever, manifested by early prostration, stiffness, and alterations in the condition of the upper air passages and of the parotid and submaxillary glands, etc., but with no effusion into the cellular tissue of the limbs, or if so, more as a sequel than as an actual symptom of the disorder.

Then we have the disease with which, I imagine, the translation deals—viz., Epizoötic Cellulitis, or, vulgarly, "Pink Eye." This, at any rate, was the disease which could be distinctly traced to the service of two stallions operating in the West of Scotland, one on either side of the Clyde; and I would have you note particularly, gentlemen, that every mare affected through these animals suffered from Epizoötic Cellulitis, and from no other disease or form of disease; that they contracted it in from seven to eight days after service; and that when communicated to other animals on the farm—which was not at all rare—it was invariably the same disease, or form of disease, that they contracted. This disease, so far as my observations went, was not fatal, although when communicated to pregnant mares from the mares first affected it frequently, but not invariably, produced abortion.

A fact worth noting here is that in some instances the inoculation, apparently coincident with service, did not prevent impregnation. The information that I obtained with regard to one of the stallions was that in February of 1883 he, along with other horses in his owner's posses-

sion, suffered from the disease, but to a much less extent than some of the others.

The swelling of the limbs was, along with the other symptoms, so trifling that he received little or no treatment. When put to service that season, after his apparently complete recovery, the effect of his service was as above described. Several veterinary surgeons, I am told, examined the horse, and certified that he was not only in perfect health, but incapable of producing the disease. When I was asked to look at him one day by his leader, I had already had pretty conclusive evidence that his services were disastrous ; and I accordingly told the man in charge that although he presented all the appearance of perfect health, I was not prepared to say that he was not producing the disease. I advised him to be put on hyposulphite of soda, chlorate of potash, and cinchona, and to have carbolised and terebinthinated inhalations and disinfectants. This treatment was adopted, but seemed to have given only a limited amount of satisfaction ; his leader declaring that he afterwards transmitted the disease, but not so frequently. Strange to say, however, in 1884, when the horse, whose district was changed, commenced his following season, a recurrence of the disease took place, and I was asked to consult with Professor McCall on the case. The leader of the horse, adhering to his statement that a modification had taken place from the treatment under which I had put him the previous year, Professor McCall was induced to put him on the same, or similar, treatment, but with what result I did not learn.

Now, gentlemen, I have no doubt the point which we would all wish to learn, is how this disease is propagated by a horse in apparent health. To my mind, one thing is absolutely necessary, and that is that the horse must be, or have at some previous time been, himself affected.

Unfortunately, in the present state of our knowledge, this conclusion leads us to that most undesirable result—a hypothesis. For the fact that hypothetical reasoning is becoming less necessary in pathology, we are largely indebted to Chauveau, Toussaint, Pasteur, etc. ; but their primary investigations were necessarily based upon hypotheses : and although it is certainly presumptuous to raise hypothetical premises on matters on which our French luminaries refrain from pronouncing any opinion, I hope that you will understand that my remarks in this direction are made in all humility, and simply with the hope that, should there be anything practical in them, they may lead towards the elucidation of the subject by those more competent, and having greater facilities, than myself.

You will observe that I mention that the stallion who gave so much trouble in this district was only slightly affected, and that several of his stable-companions were more seriously affected than he.

Now, these horses, I am told, after their recovery did not transmit the disease ; and I am also informed that similar observations have been made in America. Such being the case, may it not be that in the more severe cases, where there is considerable effusion, the major portion of the microbes is effused with the serum into the cellular tissue, and having exhausted the supply of materials necessary to their existence, are rapidly eliminated from the system, more particularly by the kidneys? On the other hand, may it not be that the horse slightly affected, in the first place receives a much smaller dose of the virus, having also, perhaps, a greater inherent power of resistance? Secondly, that the microbe, in virtue of its more limited quantity, multiplies less rapidly, thus producing less evident effects on the system? Thirdly, that its disappearance from the system is slower, being effected by a process of attenuation, resulting from the repeated acquisitions by the system of new materials supplied by digestion and respiration? This, in fact, being a similar process to the experimental one, by suitable

fluids, might explain how the animals slightly affected conserve for an indefinite time the power of propagating the disease.

Whether these considerations are worthy of attention, one thing remains clearly established—that to many of us a new light has been thrown on the modes of propagation of which contagious diseases are capable; and I have no doubt but that many present considered, like myself, that they had each been the first to observe the particular mode which it has been the purpose of this paper to signalise.

I would like now to draw your attention to the disease of this class which, in my experience, is much the most fatal. This disease merits, I think, the title of Typhoid Fever, and seems to me to have little in common with the other two diseases, except that it is more than probable that both are due to micro-organisms, each, however, being special.

The onset of this disease is characterised in the patient more particularly by a period of anxiety.

The pulse at first is usually fuller and stronger than in either of the preceding diseases, bearing a resemblance in character and number to that of Laminitis, which, indeed, in my experience, not unfrequently is early associated with the disease. The respiration for the first three, or even four, days may but little exceed the normal. The temperature is usually from 102° to 103° F. The hair is always very erect, and this indeed is usually the first symptom observed.

There is very marked hyperæsthesia of the skin, the mucous membranes are injected, the mouth usually dry, the dorsum of the tongue having a velvety feel. Frequently the animal shows colicky symptoms; the fæces and the urine, however, still appear to be normal. On the third or fourth day the tongue is pasty and clammy, with slight fœtor, the mucous membranes still more markedly injected (sometimes icteric), and the temperature, which remits, probably, 105° F. From the fifth to the eighth day there commences a discharge from the nose of a dark-brown fluid, like serum deeply stained with bile.

On the buccal membrane, in the interdental spaces and along the frænum of the tongue, there frequently appears a rash, with here and there a large petechial spot, sometimes also seen on the Schneiderian membrane. The dorsum of the tongue is now a very dark brown colour, and very rough, and the fœtor from the mouth intense. There is frequently a cutaneous eruption and also albumen in the urine.

About this time, or sometimes some days earlier, the breathing has become much accelerated, the urinary secretion suppressed, the fæces much darker in colour, and in some cases constipated, and covered with deeply-stained mucus; although in a considerable number of cases spontaneous, slight diarrhœa occurs, which is often followed by an abatement of the symptoms. The fæces, whether diarrhœa be present or not, are offensive, but more so when diarrhœic.

During this time the pulse has undergone marked alterations, being now 80 to 100, usually hard, small, irregular, and jerky. On auscultation, the heart's action is found very irregular in force, some of the beats being actually palpitations, while the others are almost inaudible, and not unfrequently there is either a gurgling sound or a metallic tinkle, or both. The lungs disclose dulness at the lower portions, usually more so on the right side. At their superior portions the normal sounds are increased. At this stage of the disease I have not been able to detect well-marked crepitations, but frequently considerable effusion. The temperature oscillates between 104° and 107° F., and may even in some cases that recover reach 108° F. I have had two such, and one, resulting in death, registered 109·1° F. Cough does not usually exist, and if so, only during convalescence; nor is there usually any discharge from he e ye. One feature particularly striking is that the respirations are often

more frequent than the pulse. The disease has a variable course, convalescence commencing in mild cases in about eight days, while in severe cases the fever may run on, with slight intermissions, for twenty days. The cases of this disease which I have seen terminate in death, I have always been inclined to associate with uræmic poisoning. There have been many and variously-marked aberrations of the action of the posterior extremities, such as tremors of the muscles of the haunches and thighs, straddling, frequent attempts at urination with no urine voided, sometimes sinking of the stifles, periods of somnolence, with others approaching delirium; profuse perspirations with an ammoniacal odour; stupid, dazed, appearance, with irregular movements, striking the head against the sides of the box, with occasional excitement and wild neighing, sometimes amaurosis and coma, with quiet death; at other times, death with violent paroxysms and apparent agony. During convalescence, which is often much more rapid than the lesions capable of detection would warrant us in prognosing, I have often been able to detect well-marked moist crepitations. Of the *post-mortems* of these cases—of which I had last year, unfortunately, the opportunity of seeing four—the principal appearances were an inflamed condition of the mucous membrane of the stomach and intestines, with, in two cases, distinct ulcerations of the stomach, and in the others large hæmorrhagic patches, principally in the stomach, with streaky, dark, inflammatory patches in the intestines; and here and there on the openings of the glands hard crusts of what I thought was dessicated lymph, stained nearly black, which, in some cases, when removed, left a slightly ulcerated appearance, in others the openings of the glands considerably enlarged. The areolar tissue round the kidneys was infiltrated, in some instances, with an amber-coloured serosity. The kidneys were soft and very friable, generally congested, and filled with minute vascular extravasations. The peritoneal cavity contained a considerable amount of effusion, of a dirty browish yellow colour, and the peritoneum was marked with petechiæ. The lungs, particularly the right, were much engorged at their lower portions, and the tissue more disintegrated than inflamed—all trace of the lobules being lost—and having a black, granular appearance, more like broken-down liver than lung tissue. The blood was tarry in appearance, with little tendency to coagulate, and there were epicardial and endocardial hæmorrhagic markings. The pericardium contained a quantity of thin claret-coloured, or blood-stained serum, and the thoracic cavity held a large quantity of dark coffee-coloured fluid with an ammoniacal odour. Portions of the pleuræ had a thin layer of soft lymph, stained brown, and easily rubbed from off the costal surfaces. This condition of the thoracic cavity and its contents I have found in cases of Nephritis, and very notably in one case, in which, on *post-mortem* examination, the kidneys were quite unrecognisable. No part but the pelvis retained its normal outline. The cortical and medullary substances were represented by a uniform, soft (but tough), red, reticulated mass, like a sponge, and both kidneys were scarcely half the ordinary size of one.

I am, consequently, of opinion that the change in the lung structures is only an indirect consequence of the disease. Its more direct cause seems to me to depend on the arrested secretion from the kidneys, which probably gives rise to an effort on the part of the lungs to perform a function for which they are physiologically incompetent. I have never had the opportunity of making a *post-mortem* examination of a case of Epizoötic Cellulitis, and therefore can draw no line of distinction between the *post-mortems;* but from the symptoms, I am strongly of the opinion that the diseases are distinct.

I was anxious to get conclusive evidence of this, which might, I thought, be done by finding whether this disease also followed copulation; but in that I

have been unsuccessful. The case which I expected might furnish evidence on the subject was that of a three-year-old filly, which was sent to Glasgow market to be served, and eight days after service there contracted Typhoid Fever, or Contagious Gastro-enteritis, such as I have just described. On inquiring, however, I find that the service of the horse she was put to has not—or is said not—to have been known to produce the disease in any other animal; so that it is possible that she may have contracted the disease from some other source in the Glasgow market, or from travelling in a contaminated, uncleansed horse-box. The mare referred to, after a serious illness, recovered, but communicated the disease to seven other animals, all under four years of age, of which three died. All the animals affected through her manifested the same symptoms—none of them suffering from Epizoötic Cellulitis, which, however, was prevalent in other parts of the district, but in all cases distinctly traceable to infection by copulation.

It may possibly be that the disease observed in 1825-6 in France was Gastro-enteric, or Typhoid Fever, while that observed in 1882 was Epizoötic Cellulitis. The gastro-enteric disease I have observed communicated in several instances by the importation of a strange horse to a stud, which in one instance I was able in a peculiar way to verify. About ten days after the animal arrived, the disease broke out in the stud, and a few days later the animal itself fell suddenly very lame.

From the gait, I thought the lameness proceeded from the hock, and although there was no swelling, on careful manipulation, great pain was found over an area of about an inch, at the lower portion of the astragalus. A day or two later, considerable swelling took place all round the hock, which, however, soon subsided, and the lameness improved. A little later the swelling had almost entirely disappeared, but the lameness returned with increased severity, and this time the patellar ligaments formed the seat. On account of these phenomena, and the sudden appearance of the disease so shortly after the animal's arrival, I thought it might be interesting to auscultate and percuss; and so it proved, for the lower portion of the right lung gave evidence of consolidation. In the course of a fortnight the mare got sufficiently well to be able to do light carting to which she was put, her ordinary service being tramway work. Whilst carting one day she fell and fractured her pelvis, both in front of and through the acetabulum. This, of course, gave me an opportunity of making a *post-mortem* examination, the interesting part of which—and the one I would like to draw your attention to—was the condition of the lung.

In the inferior third of the right lung there existed a portion completely consolidated, and having a yellowish-brown appearance in the centre, which, when cut through, seemed homogeneous, while all round its circumference there was a granular appearance, with here and there rather large spaces containing a milky fluid, in which appeared to be a number of oil globules. To me it seemed that the diseased portion was undergoing fatty metamorphosis, which, round the periphery of the solid portion, was liquefying and becoming absorbed.

Now, gentlemen, I do not wish to detain you by entering into the treatment of these diseases; but you will pardon me if, before concluding, I detain you a few minutes longer by glancing at what I think even more important, viz., some of the sanitary measures to be adopted. In large stables where the conveniences exist, I think that all freshly-imported horses, more particularly, of course, during an epizoötic, ought to undergo a month's quarantine in a stable apart from the general stable. In the event of one horse only being brought in at a time, where the horses are worked double, as in tramways, a horse from the general stock, to be wrought with the new one, could be placed alongside, and their harness and stable utensils kept apart.

The period of quarantine over, the boxes or stalls should be thoroughly disinfected, along with the clothing, harness, etc., fresh clothing put on the horses before being admitted to the general stable, and the clothing in use during quarantine washed with hot water and soda before being put along with the general stock.

When an epizoötic has once gained admission to a stable, isolation of the sick, when possible, should be the first consideration. The greatest possible attention should be paid to the condition of the ventilation and drainage, and the most absolute cleanliness enforced.

The mangers and woodwork ought to be washed down with hot water and soda, and the walls washed with lime and chloride of lime. Alternate fumigations of carbolic acid and sulphurous acid should be had recourse to night and morning; one of the fumigations taking place whilst the veterinary surgeon in attendance is paying his visit, in order that he may avoid the risk of carrying the disease to another stud.

A most reprehensible practice, I consider, is to leave the drinking water to be used the next morning in an infected stable over night. Nor should prepared foods be allowed to remain too long in a manger.

Each morning, when the stable is cleaned out, some lime ought to be scattered in the stables alike of sick and healthy horses, the sick horses being afterwards bedded down, and the stalls of the healthy horses allowed to remain bare, with the lime on them until night.

All droppings should be removed from the stables as quickly as possible, and mixed with lime before being thrown on the manure heap.

This precaution should at all times be insisted on, as I have been able to trace one outbreak of disease to the effects of some manure carted from an infected stable to a field where some young horses were going; and I see in last month's French journal that similar observations have been made in France.

These and similar precautions, into the details of which I need not enter, will do much, not only to limit the spread of the disease, but to mitigate the severity of the cases affected.

An interesting discussion followed the reading of the papers, the principal speakers being Professors McCall and Lewis, Messrs. Weir, Anderson, and Robinson.

The usual votes of thanks brought a highly successful meeting to a close.

J. MACQUEEN, *Secretary.*

Jurisprudence.

BRENTWOOD PETTY SESSIONS.—21ST MAY, 1885.

Frank Drake Denner, of South Weald, Brentwood, was charged with having professed to be a veterinary surgeon, he not being duly qualified. Mr. Thatcher prosecuted on behalf of the Royal College of Veterinary Surgeons, and stated that the proceedings were taken under Section 17, Sub-section 1, of the Veterinary Surgeons Act, 1881, which enacted that if after the 31st December, 1883, any person not being duly qualified as defined by the Act, took or used the title of veterinary surgeon or veterinary practitioner, or any name, title, addition, or description, stating that he was a veterinary surgeon, or a practitioner of veterinary surgery, or any branch thereof, or was specially qualified to practise the same, he should be liable to a fine not exceeding £20.

The defendant pleaded guilty, and stated that he had acted in ignorance of the law.

The bench took a lenient view of the case, and imposed a fine of £1 and costs.

Army Veterinary Department.

Gazette, April 28th.

Veterinary-Surgeon, First Class, Henry Dawson, to be placed on retired pay. Dated 30th April, 1885.

Gazette, May 12th.

The following gentlemen to be Veterinary-Surgeons on probation: — David Joseph Barry, James George O'Donel, Alexander Edward Richardson, and William Reginald Walker.

Gazette, May 19th.

Veterinary-Surgeon Arthur Bostock to be Veterinary-Surgeon First Class. The undermentioned gentlemen to be Veterinary-Surgeons on probation :— Edmund James Lawson, Harry Wilkinson.

The following veterinary officers have arrived home from India, having completed their tour of service in that country :—J. B. W. Skoulding, — Savage, R. Poyser, — Plomley, — Flintoff, — Philips, — Raymond.

A complimentary dinner was given to Mr. Harpley, late Royal Horse Guards, at Limmer's Hotel, on May 12th, on the occasion of his retirement from the service. The following officers were present :—Colonel Milne Home, M.P., in the chair ; General his Serene Highness Prince Edward of Saxe-Weimar, Field-Marshal Lord Strathnairn, the Duke of Richmond and Gordon, the Earl of Stair, Lord Colville, Lord Carrington, Lord Dalrymple, Lord Kilmarnock, Lord Skelmersdale, Lord A. Somerset, Sir F. Fitzwygram, M.P., Sir Archibald Campbell, Major-General Baillie, Major-General O. Williams, M.P., Colonel the Hon. O. Montague, Major Finch, Major Egerton, Major Stirling, Captain Atherley, Captain Wombwell, Hon. Rupert Carington, Hon. L. Byng, Mr. Merry, Mr. Selwyn, Mr. Matthews, Mr. Fergusson, Mr. Gordon, Mr. Howard Vyse, Mr. C. Combe, Mr. Weir, Mr. Drake, Mr. Williams, Mr. Fenwick, Mr. J. S. Forrester, and Mr. Sloane Stanley.

Obituary.

DEATH has removed from our midst one of the notable members of the profession who have done much to raise it in estimation and increase its usefulness. Mr. W. G. Spooner, M.R.C.V.S., of Southampton, died suddenly, on May 3rd, at the advanced age of 76 years. Though interfering but little in the politics of the profession, Mr. Spooner well and worthily represented it in a wide circle of friends and clients in his own particular locality ; but his name was known far beyond this by the interest he took in everything connected with farm live stock, and by the frequent and excellent papers he contributed to agricultural journals, or read before agricultural societies. Well-educated, and thoroughly trained in his profession, Mr. Spooner's tact and skill placed him in an excellent position to benefit himself and the community ; and his shrewd powers of observation and faculty of expression made him an always acceptable reader or writer on veterinary matters, and constituted him an authority of no mean calibre. He wrote a work on sheep, which is still a standard book of reference, and an excellent little treatise on the Horse's Foot.

We have also to record the death of J. Gordon, M.R.C.V.S., of New Deer, and J. C. Markham, Cannock ; the former a graduate of 1861, and the latter of 1866.

The death of, perhaps, the oldest member in the veterinary profession is reported from Vienna, as having taken place in that city in February last. J. Elias Veith died, aged 96, "full of years and honour." He was a teacher in the Vienna Veterinary School from 1823 to 1855, and occupied a prominent position as an accomplished scientist and an admirable writer.

Notes and News.

CATTLE DISEASE IN AUSTRALIA.—A curious cattle disease has made its appearance in the You Yangs district in the Colony of Victoria. An Australian paper says :—" Mr. Kendall, veterinary surgeon, has furnished a report to the Government on the cattle disease in the You Yangs district. The report states that during the past four years, since the disease broke out, 700 or 800 cattle altogether have died of it. In the digestive organs of the dead animals considerable quantities of rabbit bones were found, which Mr. Kendall has no hesitation in pronouncing a form of Anthrax or blood-poisoning. The predisposing cause of this is the bad quality of the water, and the fact that the alkalies which the water contains give animals a depraved taste for chewing animals' bones. The blood of the animals was observed to contain bacilli, not in large numbers, and bacteria were discovered in the water that the animals drank."

PROFESSOR BOULEY.—Some time ago, a movement was started in Paris to commemorate the election of Professor Bouley, the illustrious veterinarian, to the Presidency of the Académie des Sciences of France—perhaps the highest scientific society or corporation in Europe—by presenting him with a gold medal of honour, specially struck for the occasion—a replica of this in bronze to be given to each subscriber. This resolution having been duly notified to the veterinary profession, the call for subscriptions was readily responded to by veterinary surgeons in every part of the world, and the result was the collection of a sum ample for the object in view. The medal was recently presented to M. Bouley by a deputation of veterinary surgeons, who waited upon him in Paris. The bronze copy has been forwarded to the subscribers, and from that now before us, there can be no doubt as to the appropriateness and artistic value of the medal, which has been designed by Roty. On the obverse is an excellent likeness of the first veterinarian who has occupied the exalted position of President of the Académie, and on the reverse is an allegorical group, designed to testify to the active and prominent part he has taken in introducing Pasteur's protective inoculation for certain deadly contagious diseases. This represents a human figure inoculating a sheep, and above is the motto : " ARTE NOVA PASTOR PECORUM CONTAGIA VINCIT, GRATUM OPUS AGRICOLIS," while immediately beneath, on a scroll encircling bay and laurel leaves, are the words : " *Souvenir du* 26 *Janvier*, 1884 ;" and the inscription : " *Inspector-Général des Ecoles Vétérinaires, Commandeur de la Légion d'Honneur, Professeur au Museum—Ses Elèves, Confrères, Ses Amis*"—the lower part having the figure of a coiled serpent, the head bent over a tablet, on which it is inscribing. In the centre is a small space, on which the name of the subscriber is stamped. Altogether this souvenir of a great event is worthy of the occasion.

VETERINARY LEGISLATION.—England having been the first country in Europe to protect veterinary surgeons and veterinary medicine from the damaging influence of unqualified men, the profession abroad is bestirring itself in this direction, and is striving to obtain similar privileges to those accorded us in the Veterinary Surgeons Act. In Germany and in France, where there is no law to suppress impostors or empirics, steps are being taken, we believe, to obtain legislative protection; and in a recent number of the *Recueil de Médecine Vétérinaire*, M. Bouley reviews in detail, and in terms of commendation, the different clauses in our Act of Parliament.

Correspondence.

FELLOWSHIP: THE NATIONAL VETERINARY MEDICAL ASSOCIATION.

SIR,—Setting aside the miserable personalities of your correspondents, what remains? Have they proved the superiority of the Fellows? Has Mr. Olver or this "F.R.C.V.S." brought forward one fact to show that the Fellows have really and laudably raised themselves to a higher position—that they are better men and better practitioners, and more worthy of the Council and Examining Board, than hundreds of Members around them? They have not.

What "mud" have I thrown at the Fellows? Do not Class I., II., III. and IV. faithfully and truly portray them? The truth is not "mud." Do your correspondents deny that in round numbers the Fellows are 100—that sixty or seventy of these men are Fellows by the date of their diploma and a £10 fee—that though among the remaining thirty or forty there are good men, yet others owe their position to the leniency of the Examiners—all and sundry who came first to the bridge being allowed to go over—while outside and on the other side stands the P.R.C.V.S., some professors, a few examiners, and a host of good practitioners who will not—and rightly too—bow to examination?

"Wherein consists the superiority of the Fellows?" "Why should Council chamber and examining-room be handed over next year exclusively to them?" The questions remain unanswered. Let your correspondents drop their paltry, cowardly, personal remarks and reply; let them show good reason for the arbitrary decree of the Council shutting out more than 2000 Members, and handing over the honours and management of the profession to a few Fellows, the big majority of whom are not a whit better than their neighbours.

"Opinions and tastes" certainly differ, and my idea of the Fellowship degree is a high one. A higher and more honourable degree, it should only be conferred on those worthy of it. If we are to have Fellows at all, they should be Fellows in deed and in truth—not in form or, it may be, in farce. No ordinary veterinary surgeon who has crammed himself for examination should hold it. The Fellows should be men who have given abundant proof that in attainments, research, and scientific knowledge they are really above the Members of the profession, and even with 100 Fellows of this kind it is doubtful if the decree of the Council could be justified. These clever and talented Fellows sometimes make mistakes. Into their constitution the milk of human kindness and common-sense and consideration for others not infrequently but sparingly enters, and to hand over the profession to Fellows even of a high class would in my opinion be a grave error. Let the Fellowship degree flourish. Let all who think themselves worthy of it aspire to it, but leave Council Chamber and Examining Board open as heretofore to all Members worthy of them.

"Anonymity may have its uses," but a Fellow of the Royal College of Veterinary Surgeons should of all men be a gentleman, and an "F.R.C.V.S." who shelters himself behind his anonymity, and indulges in personal abuse and false statements regarding the Highland Society and Scotch practitioners, and glories in his conduct, is in my opinion a disgrace to his order—fit for neither Council nor Examining table—and can scarcely be classed among "decent, well-mannered people." On his own little not too salubrious eminence let this hiding half-hidden "Fellow" crow—he will do but little harm. "Good, right-thinking, straightforward members will at all times make better Councilmen and Examiners than such or such-like Fellows."

The National Veterinary Medical Association.—Had Mr. Olver kindly informed me of his intention to nominate me as a representative for Scotland on the Council, I would certainly have declined the honour. To properly represent Scotland on the Council of the R.C.V.S. or of even of the N.V.M.A. requires an amount of time, means, and travelling which I make bold to say comparatively few Scotch practitioners can afford to give or to undertake. To attend four meetings of Council in London simply means—at the lowest calculation—twelve or fourteen days' absence from home, £25 expenditure, and nearly 3000 miles travel. Our friends in London or within 150 miles of it can attend almost as many meetings as they choose at the cost of a few hours or days from their practices, and an expenditure of a few shillings or pounds. Scotch practitioners are heavily handicapped in this respect, and such being the case, there is surely nothing unreasonable or immoderate in their request that the R.C.V.S. or the N.V.M.A. should visit them occasionally—that they should have power among themselves by the Parliamentary mode of election to send a few men to Council—and that one or two Scotch practitioners should sit on the practice tables. If these modest and just demands are within the next few years complied with the "noise and howling from Scotland" will cease. In the meantime, I cordially join with Mr. Olver in hoping that the National Society will visit Scotland next year, that Scotch practitioners will welcome it warmly, and that our friends from the South will enjoy their visit.

In closing, Mr. Olver will perhaps excuse my reminding him that the son of a blacksmith or farmer or veterinary surgeon, accustomed to see and handle horses almost from infancy, makes almost invariably a better veterinary surgeon than a well-educated young gentleman or clerk, whose acquaintance with horses and cattle is not of a very practical nature. The former is often the man of *real* "veterinary education and science," and not infrequently of "gentlemanly demeanour," while the latter is just as frequently the man of "*so-called* education and science," and is not invariably the real gentleman Mr. Olver mentions. Good men, of course, hail from both classes, but it is rather a singular fact that the men at the present time at the head of the profession belong—with few exceptions—to the first class.

Trusting, sir, that, though rather late, you will kindly insert this in your issue for May.

Slateford, *April 20th*, 1885. C. CUNNINGHAM.

THE FELLOWSHIP DEGREE.

SIR,—As my letter to you of April 20th did not appear in this month's issue, and as I have since read your article on the "Fellowship Degree," perhaps you will allow me to say that, while admiring the general tone and moderation of your remarks, there is one aspect of the question which you appear to ignore—viz., the practical application of the Clause.

There are four Fellowship Examiners ; one, to the regret of all, has been unable to act ; another has ceased to act ; the remaining two gentlemen have been the Examiners for nearly twelve months.

A young man, "twenty-six years of age, five years in practice," prepares for our examination, which is neither "very exacting," nor "particularly severe," and passes. Thenceforth the council-chamber and examining-room are open to him.

Beside this young man stand a few of his professors, some of his examiners, many of his neighbours—perhaps even the young fellow's own father—men who have seen long service and have done good work, "who have borne the heat and burden of the day" ; but who have a very natural and deep-seated aversion to examination. The Council, through its Fellowship clause, comes to such men and virtually says, "We know that you have long and honourably practised your profession ; that in professional knowledge and skill you are second to none ; that in merit you are equal to many holding the higher degree—but we have made a decree, and that decree, like that of certain ancients, stands, 'Go ye up before the Fellowship Examiners ; submit yourselves and your attainments to their searching gaze ; place it in their power to pass or relegate you. If you satisfy them, you shall become Fellows ; if not, next year we shall shut the doors of the council-chamber and examining-room in your face.'" Such is the fiat of Clause 9, Charter 1876. Does the profession—will the profession—endorse it?

Is this Fellowship examination the only "inducement and stimulus to work" the Council has to offer? Have not many—not Fellows—"shown," and shown abundantly, "that they *have* worked"? Is this the "reward that is to sweeten their labour"? If the "rewards of our poor profession" are conferred solely on all and sundry who pass this variable examination, what remains to those whom long service and honourable conduct justly entitle to scorn the idea of it?

C. CUNNINGHAM.

EQUINE VARIOLA.

SIR,—In this month's number of your Journal, I find a letter written by Dr. Fleming in reference to the paper I read at the last meeting of the Lincolnshire Veterinary Medical Association, on "Special Forms of Stomatitis." The chief complaint, I take it, Dr. Fleming has against me is that I did not give sufficient prominence to the fact of his having been the first to describe the disease in this country.

In writing a paper of the kind at present under discussion, one has not always sufficient time at one's disposal to enter into elaborate particulars as to who was or who was not entitled to the position of priority ; but I think, in this instance at least, I sufficiently suggested that Dr. Fleming was entitled to this position, and he acknowledges himself that on the Continent others were entitled to priority. In the remarks I made on Contagious Pustular Stomatitis, I was desirous mainly to show that there was a possibility of such an affection existing in an enzoöty or epizoöty, without its being necessarily associated with Equine Variola, and I may be pardoned if I say that there is nothing in Dr. Fleming's letter that tends to convince me to the contrary. In one part of his letter, Dr. Fleming seems to question the fact of my having seen *typical* cases of Variola Equina, and that, too, on the ground that I have not described these cases. Surely it is not necessary for me, or any other professional man in my position, to describe minutely the symptoms presented by any particular disease, to convince another professional man of acknowledged probity and ability that I had positively witnessed that particular affection?

The cases of Equine Variola which have come under my notice have not

differed materially in their manifestations from those described at different times by Dr. Fleming; but, in all cases of this kind previously observed by me, I have not seen the eruption *entirely confined to the mouth and borders of the lips*, in the same manner as in the two series of cases referred to in my paper. The last case of Variola Equina which came under my notice occurred in the practice of Mr. Rutherford, M.R.C.V.S., in this city; and in that, as in previous cases I have seen, the eruptions were general.

I do not myself think that the fact mentioned by Dr. Fleming of the eruptions appearing in the Schneiderian mucus membrane, and on the face and croup in particular instances, is any positive argument against the probability of there being an infective Pustular Stomatitis quite distinct in its character from an Equine Variola. Ante-inoculation, it may be presumed, is as likely to take place in one case as in the other; and it is easy to comprehend that the virus of an even *locally infective disorder*, brought in contact with an open wound, might induce therein, and impart, even at a distance (through the lymphatics), a similar condition.

Perhaps I laid too much stress upon the remark "That I was unable to imagine the possibility of a series of cases of any general, infective, eruptive disorder occurring in which the lesions are entirely localised in one particular part;" nevertheless, I should imagine that if the two affections under consideration were identical, I should have had, in the series of cases quoted by me, some evidence of their identity; and Dr. Fleming has himself stated, in another place, that even Variola Vaccina may develop lesions in parts other than the udder, *e.g.*, the heels, the scrotum, the mouth, lips, etc., and *my experience* of this affection is confirmatory of his.

There is one characteristic of the affection mentioned by me which I have not seen in connection with Variola Equina, nor do I remember that it has been noticed by others (if it has, Dr. Fleming will, perhaps, correct me in the matter), viz., Suppurative Lymphadenitis—a characteristic of a very pronounced type in those cases where the cause of the affection was not arrested by what proved to be abortive treatment; a form of treatment which, I may be allowed to remark, is by no means universal, nor even approximately successful, when applied to such an affection as Foot-and-Mouth Disease.

In conclusion, sir, allow me to say that I shall in the future watch with even more than my ordinary care any cases similar to those I have described, as also any cases of Variola Equina which may come under my immediate observation, with a view to determine whether they are or are not co-related, or only different phases of the same malady; and, I feel assured that my friend Dr. Fleming will assist me in the satisfactory determination of the point, if opportunity offers for so doing.

Royal Veterinary College, Edinburgh, *May 12th.* THOMAS WALLEY.

A MISSTATEMENT.

SIR,—Mr. Smith, in the March number of the VETERINARY JOURNAL for this year, charges me with having made an "astounding misstatement," and since it is only right that we should know the nature of the misstatement complained of, I beg to call attention to the undermentioned statements:—

Speaking of the association of a mould fungus in Bursatti, Mr. Smith said,—"But I have not found it after the sore has been hardened by chromic acid" (VETERINARY JOURNAL, *July*, 1884, p. 17).

Charging me with misstatements, Mr. Smith says he did not state "that sores should not be examined after hardening in chromic acid" (VETERINARY JOURNAL, *March*, 1885, p. 218).

The facts are, sir, that Mr. Smith has diverted attention by a mere play upon words; for so long ago as 1876, Drs. Lewis and Cunningham, when engaged in investigating the nature of Delhi Boil, had stated that "tissues which have been preserved in solutions of chromate of potash, or chromic acid, are very apt to become the sites of growth of fungi." (Report on the 'Oriental Sore,' or Lupus Endemicus, observed in India, by Drs. T. R. Lewis, and D. D. Cunningham, Calcutta, November, 1876). And my own experience leads me to corroborate the above. Thus, I have found the parasites in question in great numbers in pieces of healthy liver of the horse, as well as in other tissues, which were so hardened.

Cawnpore, *March 28th*, 1885. R. W. BURKE, A.V.D.

"KUMRI" AND RHEUMATOID ARTHRITIS.

DEAR SIR,—In the VETERINARY JOURNAL for March Veterinary Surgeon (1st class) R. Poyser asserts his claim to "the honour" of being "the first to discover that the disease known in India as 'Kumri,' and supposed to be 'Paraplegia,' is not a paralytic affection." I will, however, with your permission, remind Mr. Poyser that, as long ago as 1858, I decided and declared that "Kumri" was not a paralytic disease, but the result of a diseased condition of the hocks. As evidence, I enclose two papers written by me—the first in 1874, and published in the *Veterinarian* in 1875, which contain my views; and shall feel greatly obliged if you will do me the honour to republish them in your journal. I also attach, for publication, a copy of a letter received from a medical friend on the subject.

I regret to trouble you in this matter; but having tested, and confirmed, the opinion I had formed by careful investigation, I have maintained that opinion ever since, in the face of universal and bigoted opposition, combined, in some instances, with ridicule. I am, therefore, disinclined to allow my ideas to be appropriated—for the second time—and reproduced as original with impunity. Should Mr. Poyser have forgotten that I have done so, and the loss of my valuable collection of morbid specimens that I sustained on a voyage home from India in 1877, his memory must have become terribly defective. It may be as well to state that I met with several cases of "Articular Rheumatism" in Meerut and Umballa, in and subsequent to 1878-1879, and in no instance did I fail to diagnose the disease; and would point out that horses recover perfectly from "Articular Rheumatism," but "ulceration of the articular surfaces of the hock joint," that may arise from various other causes, cripples them for life, and is the true cause of the Locomotor Ataxy designated by the natives of India "Kumri."

If there be any *kudos* attached to taking a common-sense view of symptoms in disease, the profession will now be able to judge to whom "the honour" belongs in this case.

JOHN B. W. SKOULDING,
V. S. (1st Class), A.V.D.

[Owing to the demands upon our space, we are obliged to defer the publication of the lengthy papers referred to, as an appendix to this letter.]

SPAYING: IS IT JUSTIFIABLE OR CRUEL?

SIR,—In reply to the above query in your last month's issue, I venture to express the opinion, based on a practical experience of twenty-five years, that, although undoubtedly a painfully severe operation, spaying is, in pigs especially, requisite and justifiable. There is, however, a doubt in my mind as to its absolute necessity in calves, though none as to its utility. In milch cows

its adoption with a view to prolong the secretion of milk, etc., I have no hesitation in asserting to be a complete failure, consequently cruel and unwarrantable ; and bitches being so easily controlled during the period of œstrum, the operation should never be performed unless in exceptional instances, and then only when the animal is under the influence of an anæsthetic ; and last, but not least, I certainly think this, or indeed any other operation, should only be permitted to be performed by qualified men, instead of, as at present, chiefly by "castrators" or "gelders," as they are styled, the majority of whom present strong visible symptoms of chronic alcoholic poisoning—a condition, to my thinking, by no means desirable for such undertaking.

I have no doubt some members of the profession will differ from my opinion that it should only be permitted by qualified men, and for obvious reasons. Many, fortunately possessing select connections and first-class town practices, are not required to do it. Again, *there are those who cannot spay*, and would rather *encourage the local gelder* than risk opposition from a rival brother chip ; and some there are whose intellectual sublimity is of such magnitude that they would lead you to believe it would be nothing short of defilement to have anything to do with that vulgar species of *gintleman*, who, in Ireland, is accredited with paying the *rint*, belongs Be this as it may, I am not ashamed to state that I have earned many an honest pound by castrating and spaying, and hope to do so again. I consider it not only *equally* as reputable a method of earning money, *but more so* than the practice adopted by some *of making their profession a cloak for horse coping*.

Now, so far from its being *infra dig.* to perform this operation, I am decidedly of the opinion I once heard expressed by Professor Simonds, that, when executed with expedition and dexterity, it is an extremely neat operation, and however good an anatomist a man may be, nothing but practice will render him expert. Moreover, as we cannot all be "top-sawyers" in our profession, any more than in the medical profession, I consider it imperative on the part of *us, humble country practitioners*, to do it as a matter of self-protection against gelders, etc. ; indeed, I think that all veterinary surgeons should be good castrators and spayers, *unless we are to become the laughing-stock* of *such*, and *men* of the *Farmer Miles stamp*. In this opinion I feel persuaded I am supported by a majority of those in mixed and country practice ; for how often have I known the gelder of a short time enlarge his sphere of operations by going in for quacking and doctoring—to obtain and keep which he will *contract* to gull his victims, and carry on his ignorant, and ofttimes barbarous, practices at such a sum as no respectable veterinary surgeon would attempt ? And thus, from the genus gelder, in how many instances have sprung into existence the cowleech, the quack, etc., now elevated by the Act of 1881 to the dubious dignity and title *of existing practitioner ?*

F. T. WELHAM, M.R.C.V.S., ETC.

"A CANINE AND PUBLIC GRIEVANCE."

SIR,—I fully expected, after publishing my illustrations of canine ignorance in the *Live Stock Journal*, to receive an attack from some quarter, and therefore "R.O.F.S.'s" effusion in last month's VETERINARY JOURNAL does not surprise me. A man zealous in a good cause must take the bitter with the sweet. It is not the first time I have been told that my aim is the chair of canine pathology. Such a charge is as groundless as it is narrow-minded, and with this short answer I will leave it for the further reflection of

"R.O.F.S." Now for the invitation or advice and reproof kindly offered by "R.O.F.S." in the following paragraph :—"If he be desirous of reformation in the curriculum of the various veterinary schools, let him bring his ideas straightforward at the proper time and place, and not stand behind the scenes and merely agitate outsiders by contributions to agricultural papers, at the expense of his professional brethren and his own etiquette." The "proper time" has long passed ; the subject was urged by Youatt in its "proper place" (The Royal Veterinary College), and forgotten in his death.

Before writing publicly, I pleaded through the fittest of all professional mediums, the VETERINARY JOURNAL, but vainly ; I then, having exercised *etiquette* to no purpose, opened the subject in the columns of the *Live Stock Journal*, a paper eminently suited for its ventilation, a thorough friend to our profession, and one, although perhaps now drifting more into an agricultural channel, which has ever advanced the interests of the canine world. Why "R.O.F.S." should be sore upon the latter point I cannot tell ; but I may inform him that many veterinary surgeons besides myself write to agricultural journals, although for some reason their names are not published. As I detest *nom-de-plumes*, initials, or concealment, I adopt the reverse course.

But whatever blame may be cast upon me, in the end I shall be perfectly satisfied, as I am now, in having done my utmost to move the powers that be to consider, as a most important part of veterinary tuition, the claims of the canine race. I think it is simply a disgrace to the veterinary profession that year after year men should go forth from their college, utterly ignorant of a subject of such vital importance to the world at large.

Take, for illustration, the horrible malady of "Rabies," the verdict to be decided by a man who has never seen a case, nor probably heard a lecture on the subject. What fearful havoc such a man might occasion through an incorrect diagnosis !

My only motive in writing so often on this "Canine and Public Grievance"—for both assuredly it is—has been, not from self-interest, but for the sake of a good cause and for the public welfare ; and so long as our teaching schools and their governing boards ignore it, so long shall I consider both guilty of neglecting what I feel sure it is in their power to promote. If the adversities of veterinary surgeons are so great as suggested by "R.O.F.S.," there surely is all the stronger reason for educating them efficiently in a lucrative branch of the profession.

A little of that liberality we are asked to exercise towards what, in my humble opinion, was not required, a new Royal College building, would be well expended in founding a chair to redeem the profession from the scorn and ridicule it has drawn upon itself through the inexcusable neglect of canine pathology. The egregious blunders of one man not only injure himself, but the profession as a body ; and my illustrations were not penned to hold up the mistaken ones to ridicule, but to stimulate the public to take the matter up, as it would appear futile to advocate the cause further in its proper quarter.

J. WOODROFFE HILL, F.R.C.V.S.

THE EDUCATION OF VETERINARY STUDENTS.

SIR,—Reformation is much needed in our system of teaching ; we must and *will*, have men able to do the work. Many a man possesses the diploma, "fully qualified, etc., etc.," who has never examined three horses as to soundness, or seen a cow calve, or castrated a bull. Perhaps one good argument against the apprenticeship matter is the fact that a lad may

not always be lucky in living with a respectable and scientific veterinary surgeon.

Whether the following proposal is possible of carrying out, I cannot say: To have a large breeding establishment formed for cattle, as well as horses, in an agricultural district. To teach chemistry, botany, etc., etc., and all matters pertaining to the actual duties which go to form the daily routine of a busy practitioner's life, such as castration, parturition, examinations, etc. To make each student do the work *with his own hands*, and before his fellow-students.

Another great advantage would be that the pupils would be unable to indulge in the many dissipations that ruin so many in London, Edinburgh, etc.

There are plenty of monied people willing enough to come forward to assist in great commercial matters in the City, and I feel certain that if the above affair were properly put before them, it could be carried out with advantage to all concerned. "ACTUAL WORK *v.* ONLOOKER."

TO CORRESPONDENTS.

SEVERAL communications and reports, for which there was not space in this month's JOURNAL, will appear next month.

We are sorry we cannot publish Professor McFadyean's letter—the terms he employs, and the tone he adopts, rendering it impossible to afford him this privilege, or to further discuss the matter of which it treats. We are ready to substitute "large number" for "great majority," if that will soothe him; but we would refer him to Legh's "Anatomy"—a work with which he does not appear to be acquainted—in the original German, or the French edition by Zundel. He will there find that his assertion is not based on fact, while the statement he contradicts is absolutely true.

Communications, Books, Journals, etc., Received.

COMMUNICATIONS have been received from R. W. Burke, A.V.D., Cawnpore; A. W. Hill, London; J. B. Gresswell, Louth; Professor McCall, Glasgow; J. H. Carter, Burnley; H. Leeney, East Grinstead; J. Woodroffe Hill, Wolverhampton; Professor McEachran, Montreal; E. Kitchin, Liverpool; C. Gresty, Newcastle-on-Tyne; J. Macqueen, Glasgow; H. Kidd, Hungerford; J. B. Wolstenholme, Manchester; F. T. Welham, Brentwood; "Actual Work *v.* On-looker"; C. Cunningham, Slateford; Professor Walley, Edinburgh; R. Rutherford, Edinburgh; Professor McFadyean, Edinburgh.

BOOKS AND PAMPHLETS: *J. F. Allen, M.D.*, "Is Enteric Fever a Cattle Disease?" *A. Lydtin*, Ueber die Perlsucht; Journal of the Royal Agricultural Society of England; *T. Christy*, New Commercial Plants and Drugs; Indian Civil Veterinary Reports; *F. Eichbaum*, Grundriss der Geschichte der Thierheilkunde.

JOURNALS, ETC.: *Revista Popular de la Exposicion Rural; American Veterinary Review; Tidscrift für Veterinar-Medicin; Journal of Comparative Medicine and Surgery; Scottish Agricultural Gazette; Lancet; British and Colonial Druggist; Wochenschrift für Thierheilkunde und Viehzucht; Der Thierarzt; Animal World; Mark Lane Express; Live Stock Journal; Annales de Médecine Vétérinaire; Repertorium für Thierheilkunde; Revue Vétérinaire; Archiv für Wissenschaftliche; Der Hufschmied; Œsterreichische Vierteljahresschrift für Wissenschaftliche; Chicago Live Stock Journal; Edinburgh Medical Journal; Clinica Veterinaria; Kansas Live Stock Indicator; Quarterly Journal of Veterinary Science in India.*

NEWSPAPERS: *Glasgow Herald; Minneapolis Tribune; North-Eastern Advertiser and Malton Gazette; Kent Messenger; Ea tern Daily Press.*

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